BELLY UP
The Interex user group files for bankruptcy protection in the wake of its shutdown last month. PAGE 7

TIME TO BURY THE HATCHET?
CIO Michael H. Hugos has a heretical thought: Maybe accountants aren't so bad after all. PAGE 21

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Hackers Beating Efforts to Patch Software Flaws

Rapid attacks via Windows 2000 hole prompt calls for broader IT security mechanisms

BY JAIKUMAR VIJAYAN

The speed at which hackers are taking advantage of newly disclosed software flaws should be prompting companies to adopt stronger measures for dealing with such vulnerabilities, according to IT managers and analysts.

INSIDE
"Spear-phishing" attacks pose a dangerous new threat. PAGE 8

Several security experts last week said that IT departments need to look beyond just patching defects and devise broader and more holistic strategies to defend themselves against attacks seeking to quickly exploit new flaws.

The advice comes in the wake of an onslaught of worms that targeted a flaw in a plug-and-play component of Windows 2000. The worms hit several large companies, including The New York Times Co., Cable News Network LP, Caterpillar Inc., DaimlerChrysler AG and General Electric Co., when hackers made use of the hole disclosed less than a week earlier by Microsoft Corp. as part of its monthly patch release.

> We are going to have to fast-track the latest security upgrades, maybe the same day, unfortunately.
>
> SATISH AJMANI, CIO, SANTA CLARA COUNTY

The rapid exploitation of the Windows 2000 vulnerability left some IT managers acutely aware of the need to be vigilant about keeping their systems up to date.

"We are going to have to fast-track the latest security upgrades, maybe the same day, unfortunately," said Satish Ajmani, CIO of California's Santa Clara County. "It is scary."

The trend has prompted Uline Inc. to accelerate its patching of desktops and servers, said Robert Olson, a

Hackers, page 16

NEWSPAPER

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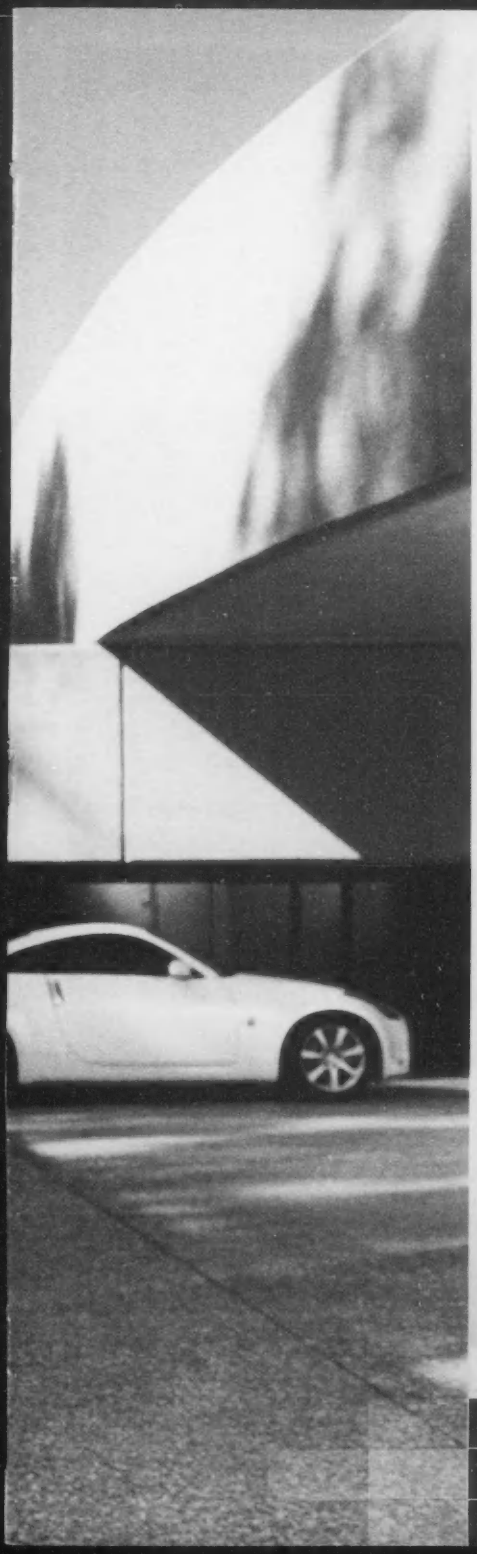

"At Nissan, we expect to save at least $135 million annually thanks to the efficiencies that Windows Server 2003 and Exchange Server 2003 are helping us achieve."

Toshihiko Suda
Senior Manager, *Nissan Motor Company, Ltd.*

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Show Me

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Offshoring 101: Protect Yourself

CAREERS: Robert Half Technology's Katherine Spencer Lee offers some tips for maximizing your marketability to take advantage of the opportunities related to offshoring at your company. **QuickLink 56062**

Lessons Learned From Corporate Security Breaches

OPINION: Privacy columnist Jay Cline provides a five-point agenda for preventing the kind of information security breaches that are triggering big headlines and legislation. **QuickLink 56017**

FUD-busting the Grid Debate

SOFTWARE: The research community was good enough to create and oversee the Internet, says grid pioneer Ian Foster. So why are some vendors claiming that academic grid software isn't good enough for corporate IT? **QuickLink 56090**

Where Is Storage Infrastructure Going?

WEBCAST: EMC's Mark Lewis says that managers should tackle storage virtualization projects by first identifying storage pain points before attempting practical innovation. **QuickLink a6910**

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AT DEADLINE

Air Force Notifies 33,000 of Hack

The U.S. Air Force said it is notifying more than 33,000 airmen of a security breach in its online Assignment Management System, which includes career and personal information of personnel. Officials said someone illicitly entered the system using a legitimate user's password and accessed information on an undisclosed number of officers.

Sun Creates New Open-Source Office

Sun Microsystems Inc. has created a new office to coordinate its open-source projects and appointed longtime Sun technology evangelist Simon Phipps to oversee the effort as chief open-source officer. Phipps has been performing the duties of that job for about two years. The move marks the first time Sun has put an executive in charge of all of its open-source projects.

Intel Offers New Training in India

Intel Corp. and training company NIIT Ltd. have agreed to create specialized training to help software developers in India learn about Intel architectures. The program, offered in labs at 10 NIIT training centers in India, will initially focus on multicore processing. In three years, Intel expects to extend the program to at least 50,000 students.

Qualcomm Buying Mobile Tool Supplier

Qualcomm Inc. plans to buy Elata Ltd., a maker of mobile content-delivery software, for $57 million in cash. Qualcomm said it will integrate Elata's software with its own Brew technology, which acts as a "virtual marketplace" between content providers and mobile operators. Elata's products support standards like Java, the Wireless Application Protocol and the Open Mobile Alliance's DRM.

Training Needed to Halt 'Spear-Phishing' Attacks

Little technology available to combat targeted e-mail scams, say experts

BY JAIKUMAR VIJAYAN

So-called spear-phishing attacks — customized spoof e-mails that appear to come from trusted sources and ask recipients to part with confidential information — pose a dangerous and emerging threat to organizations.

There are no mature technical solutions to the problem, so IT must emphasize education, security experts said during a telephone briefing on the topic last week.

The briefing for federal and state security managers was organized by the SANS Institute, a security research company in Bethesda, Md.

"Phishing has become so sophisticated that it has become one of our top [security] concerns," said William Pelgrin, director of the New York State Office of Cyber Security and Critical Infrastructure Coordination (CSCIC) in Albany.

Spear-phishing attacks are similar to regular phishing scams in that they try to lure victims into sharing confidential data or downloading Trojan horse programs. However, spear phishing is far more targeted, and the e-mails are much more customized than regular phishing missives.

Firewall Killers

The volume of e-mail in a spear-fishing attack is much lower than it is in a regular phishing exploit, making spear-fishing scams more difficult to detect.

Alan Paller, director of research at the SANS Institute, described spear-fishing incidents as "firewall-killer attacks" that can be as effective as "unsecured wireless for going through the perimeter."

E-mail authentication technologies can help alleviate the problem, said Dave Jevans, chairman of the Anti-Phishing Working Group in Cambridge, Mass. But many relevant standards are immature, and available technologies can require large upgrades to e-mail infrastructures. Thus, user education and training are important, Pelgrin said.

In a mock phishing scenario conducted between March and May, the New York CSCIC sent spoofed e-mails to about 10,000 employees across five state agencies, trying to trick users into surrendering their passwords. More than 75% of the recipients opened the e-mail, 17% followed the link, and 15% attempted to enter their passwords, Pelgrin said.

In an exercise two months later — after users were educated about the technique — only 8% of respondents opened the e-mail, Pelgrin said.

The U.S. Military Academy at West Point has conducted similar phishing exercises over the past few years and has seen a decline in the number of users who fall for them.

At the same time, the number of recipients reporting incidents of suspicious e-mail has gradually risen, showing that more people are aware of the problem, said Aaron Ferguson, an assistant professor in West Point's department of electrical engineering and computer science. **56330**

Spear-Phishing Test

The New York CSCIC conducted a mock phishing exercise across five state agencies this spring.

- Of the nearly **10,000** e-mails that were sent, at least **75%** of them **were opened.**
- **17%** of the recipients **followed the e-mail's link**, which took them to a false site.
- **15%** of the e-mail recipients **attempted to interact** with a fake password form on the site.
- **3%** of the e-mail recipients **took the appropriate action** by manually typing the Web address into their browsers.

SOURCE: NEW YORK CSCIC

Microsoft Investigates Reported Browser Flaw

Affects only systems with the Msdds.dll file

BY ROBERT McMILLAN

An unpatched vulnerability in a file used within Microsoft Corp.'s Office and Visual Studio software could enable attackers to seize control of systems via the Internet Explorer browser, security researchers in France reported last week.

The disclosure prompted Microsoft to issue a security advisory saying that it was "aggressively investigating" the reported flaw. But the software vendor also took the researchers to task, saying that the possible vulnerability "was not disclosed responsibly, potentially putting computer users at risk" because of the lack of an available patch.

Microsoft said the situation involves a Component Object Model object called the Microsoft DDS Library Shape Control, or Msdds.dll. The object isn't shipped as part of Windows by default; it isn't designated as safe for scripting uses; and it isn't intended to be used within IE, according to the advisory.

However, the French Security Incident Response Team (FrSIRT) said a memory-corruption error in the Msdds.dll file could be exploited by attackers who place malicious code on Web pages displayed in Microsoft's Web browser. The Montpellier, France-based research organization gave the flaw a "critical" rating, although it noted that only systems containing Msdds.dll would be vulnerable.

The Msdds.dll file is used by developers to create customized Office applications, said Russ Cooper, editor of the NTBugtraq mailing list and an analyst at Cybertrust Inc. in Herndon, Va. Cooper said during an instant messaging exchange that he doesn't think the file has been installed on a large number of Windows systems and that he isn't very concerned about possible exploits of the vulnerability.

Microsoft said it wasn't aware of any attacks trying to take advantage of the flaw reported by the FrSIRT. The vendor, which added that Msdds.dll can also be used within Visual Studio to visualize database objects, said it will decide whether a patch is needed after completing its investigation of the flaw.

Microsoft suggested workarounds that it said could block known attack mechanisms. For example, the company said IT managers could use the Windows registry file to disable Msdds.dll from running in IE or unregister it from the operating system.

In a related matter, about a dozen Web sites have cropped up that try to take advantage of a flaw in IE's JPEG rendering engine, said Dan Hubbard, senior director of security and research at Websense Inc. in San Diego. Microsoft patched that hole on Aug. 9 as part of its monthly security updates.

Attackers are increasingly using IE instead of e-mail viruses to seize control of systems, Hubbard said. "E-mail is just not as effective as it used to be," he noted. **56335**

McMillan writes for the IDG News Service.

Interex Seeks Bankruptcy Protection After Shutdown

HP user group faced steep revenue drop in the past year, court filing says

BY PATRICK THIBODEAU

After abruptly pulling the plug on its operations in July, the Interex user group this month filed for bankruptcy protection, citing plummeting revenue and increasing debt.

The Sunnyvale, Calif.-based organization for users of Hewlett-Packard Co.'s systems reported total liabilities of just over $4 million, in documents filed at the U.S. Bankruptcy Court for the Northern District of California in San Jose.

Interex shut down last month and canceled its HP World conference, which was due to be held last week in San Francisco [QuickLink 55740]. The user group, which claimed to have about 100,000 members, offered no explanation for the closure beyond a statement that it was "financially necessary." Interex board members contacted by *Computerworld* have declined to discuss the events that led to the shutdown.

But the Chapter 7 bankruptcy petition that was filed Aug. 11 provides some insights.

In 2003, Interex brought in nearly $8 million from its conferences, publications and membership fees, according to the court papers. Last year, when HP announced that it would hold its own user conference starting this September, Interex's revenue fell to $6.4 million — a 20% decline.

From Jan. 1 to Aug. 8 of this year, the user group recorded just $713,409 in revenue, the bankruptcy filing said.

HP World was its chief source of revenue, but Interex faced a decline in trade-show bookings. Sources blamed competition from HP's upcoming conference and a general decline in interest among IT vendors in exhibiting at user conferences.

The court filing shows that Ronald Evans, the user group's executive director, was paid $214,676 from August 2004 through the end of last month, including a payment of $43,746 that was made in July. However, his biweekly salary dropped from $8,925 to $7,140 in the first five pay periods of that time frame.

The final payment to Evans may have been required under the terms of his contract or as part of a severance deal, said one source. In addition, the user group still owes Evans $8,255.80, according to the bankruptcy filing.

Four Interex board members last week either didn't return calls, wouldn't comment on any issues or said they could not discuss matters relating to the bankruptcy because of the ongoing court proceedings.

Evans couldn't be reached by phone, and an e-mail that was forwarded to him by an Interex board member didn't draw a response.

Falling Fortunes

Revenue figures reported by Interex in its bankruptcy court filing

* Through Aug. 8

Future in Doubt

As far as the future of Interex is concerned, Denys Beauchemin, an IT consultant who is the user group's vice chairman, said he doubts that any new organization will emerge from its ashes.

"HP wants to control everything, and there is no room for Interex or anything like that," Beauchemin said.

However, the three other independent HP user groups said in the wake of Interex's collapse that they remain on solid financial footings. One of those groups, Chicago-based Encompass, will jointly manage HP Technology Forum 2005, the new HP-sponsored conference scheduled to begin Sept. 12 in New Orleans.

Jim Becker, an Encompass board member and lead systems engineer at the Urban Institute, a Washington think tank, said a key goal of the upcoming conference "is to put real users and real experts in the room together."

Becker said the conference's IT focus "will probably be halfway between the tactical and strategic." Many of the expected attendees are "the chief influencers" who gather data used to help executives make IT decisions, he added. **56332**

Congress Faces Renewed Fight Over H-1B Visa Limits

Cap for FY '06 is reached; IT groups lobby for increase

BY PATRICK THIBODEAU

High-tech trade groups will likely again push Congress to increase the H-1B visa cap, after the government said this month that it has already received enough petitions to reach the limit of 65,000 new visas set for the fiscal year that starts Oct. 1.

The Aug. 10 cutoff date for fiscal 2006 visa petitions was the earliest one ever for the controversial program and marked the first time that the application process has been closed prior to the start of a fiscal year.

The early cutoff, which was officially announced two days after it took effect, means that some U.S. employers may have to wait more than a year before they can bring in additional H-1B workers.

"It's becoming increasingly difficult for the best talent in the world to come to the U.S.," said John Palafoutas, vice president of the Washington-based trade group AEA. Palafoutas said IT industry groups have been meeting with congressional leaders "to figure out what's the best way to proceed on the issue."

It's possible that a "market-based" solution could be crafted that would include automatic triggers to increase the cap if there was a strong demand for H-1B visas, he added.

'Significant' Boost Eyed

Trade groups aren't specifying how much of an increase they may seek in the visa limit. But any expansion of the cap "should be significant," said Bob Cohen, a spokesman for the Information Technology Association of America in Arlington, Va. "I think it's a real problem, and the longer we put off addressing it, the less competitive we will be."

Vic Goel, an immigration attorney in Greenbelt, Md., said the quick exhaustion of the fiscal 2006 H-1B allotment "obviously should be taken as a sign that we don't have enough visas" available — especially with the U.S. economy doing well.

But H-1B critic Ron Hira, who is vice president of career activities at IEEE-USA, questioned claims that reaching the cap so soon indicates a need for more visas.

Hira, who is also an assistant professor of public policy at the Rochester Institute of Technology in Rochester, N.Y., noted that the fiscal 2006 limit has been hit before companies have even hired any new workers.

"It seems to indicate that companies are planning ahead for positions that don't exist right now, which highlights the fact that, contrary to conventional wisdom, they aren't searching for Americans first," Hira said.

Employers aren't completely out of H-1B options. An additional 20,000 visas became available in May for the current fiscal year, and a similar number will be offered in fiscal 2006. But Congress has limited those visas to foreign workers who have advanced degrees from U.S. universities.

As of early this month, the U.S. Citizenship and Immigration Services (USCIS) had received 10,379 advanced-degree petitions for fiscal 2005 and another 8,000 or so for next year, according to spokesman Christopher Bentley.

Cap Numbers

The current H-1B visa limit is 65,000 per fiscal year, plus 20,000 for workers with master's degrees or higher from U.S. universities.

FINE PRINT: 6,800 of the regular visas are set aside for workers from Singapore and Chile under trade agreements.

PREVIOUS LIMIT: 195,000 in fiscal 2001, 2002 and 2003.

ANOTHER OPTION: Congress this year approved the E-3 visa program, which makes 10,500 visas similar to the H-1B available to Australian citizens.

Hira charged that if U.S. companies truly are in need of highly skilled foreign workers, the extra visas set aside for graduate students schooled in the U.S. would have been snapped up quickly.

"If they were hiring the best and brightest, that would be the first category to go," he said.

The USCIS will use a computer to randomly select applications from the visa petitions received by Aug. 10 until the fiscal 2006 cap allotment is met, Bentley said. All of the remaining petitions will be rejected by the agency. **56328**

BRIEFS

Agilent Sells Chip Unit, LED Stake

Agilent Technologies Inc. plans to sell its semiconductor product division to Kohlberg Kravis Roberts & Co. and Silver Lake Partners for $2.66 billion. Agilent unloaded the chip business to focus on its core test and measurement operations. Agilent also agreed to sell its stake in LED display maker Lumileds Lighting LLC to Philips Electronics NV for $950 million.

HP to Resell Emulex Host Bus Adapters

Hewlett-Packard Co. has agreed to resell Emulex Corp. Fibre Channel host bus adapters (HBA) with its blade servers. Emulex has a similar agreement with IBM, which resells the storage networking company's HBAs with its eServer BladeCenter servers. HP also resells HBAs from Emulex rival QLogic Corp.

Intel Paxville Chips To Ship Early

Intel Corp. plans to release its dual-core, hyperthreaded Xeon and Xeon MP processors, codenamed "Paxville," later this year. The chips were due to ship in 2006. Intel said the move was possible because development is ahead of schedule. Intel's hyperthreading technology enables a single dual-core processor to run four threads at the same time.

U.K. Updates IT Procurement Rules

The U.K. has updated its guidelines for government IT procurement contracts, bringing them into line with European regulations that prohibit the public sector from discriminating against vendors in invitations for bids. The guidelines state that requests for bids for processors, PCs and other equipment must use generic terms and not request specific brands or clock speeds.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL

MATTHEW FAULKNER

Sparks Fly as Electric Grid . . .

. . . becomes infrastructure for data networks. Broadband over power lines (BPL), the ability to transmit data, voice and video over standard electrical power lines, has long angered many ham radio operators who claim that BPL interferes with their ability to transmit or receive signals. BPL has also alarmed some, such as the Association of Public-Safety Communications Officials International, whose members depend on radio spectrum near BPL transmission frequencies. And Lawrence Spiwak, president of the Phoenix Center for Advanced Legal and Economic Policy Studies in Washington and a former general counsel at the FCC, says, "Most power companies don't think BPL is ready for prime time because they are very sensitive about protecting grid reliability."

50% Cinergy BPL users who switched from cable or DSL.

Despite this widespread skepticism, BPL has gotten some big boosts lately. The Federal Communications Commission has changed its rules to "foster broadband deployment using the significantly untapped capabilities of the nation's power grid." Last month, Google Inc. and Goldman Sachs & Co. invested $100 million in Germantown, Md.-based Current Communications Group LLC, which sells BPL gear and partners with utility companies to offer Internet access over power lines. And this month, the Texas legislature passed regulations to encourage BPL, and the California Public Utilities Commission is considering approving BPL pilot projects there.

Current Technologies' CT Bridge chip set

Perhaps most important is the ongoing deployment of the Current Technologies LLC unit's products on Cinergy Corp.'s grid near 50,000 homes in Hamilton County, Ohio. Kathy Meinke, a spokeswoman for the Cincinnati utility, says that 95% of the "thousands of users" rate the Internet access service as satisfactory. She adds that there have been no complaints filed by ham radio users, a point confirmed by Allen Pitts of the American Radio Relay League, a ham radio operators organization in Newington, Conn. According to Jim Mollenkopf, vice president of products and architecture at Current Technologies, that's because his company "has worked hard not to use amateur radio frequencies." Pitts acknowledges that Current "is working honestly to deal with problems. We won't say they're wearing a white hat, but it's beige." Still, he remains concerned as deployment grows.

Such expansion is likely later this year, when Current upgrades its CT Bridge chip set, upping performance to as much as 10Mbit/sec. to each household on the grid. Mollenkopf claims that utilities also like BPL because it might be used for automatic meter reading and to provide house-by-house load controls.

Pouring cold water on IBM's . . .

. . . Cool Blue server technology is what Collette LaForce has in mind. She's the vice president of marketing at Rackable Systems Inc. in Milpitas, Calif. She claims that if you want to use the eServer Rear Door Heat eXchanger from IBM, which cools racks of steamy x86 servers [QuickLink 55501], "you need to make a major infrastructure investment." No, not updated cabling systems; rather, new plumbing systems. IBM's approach requires channeling water from your data center's air conditioning units, or chillers, so that it can flow through the eXchanger and keep your Intel-based servers from overheating. But once you, um, replumb your data center to accommodate IBM's Cool Blue systems, they're stuck in place, unless you replumb the data center again. IBM spokesman Tim Willeford dismissed LaForce's critique, saying, "Most data centers have chilled water directly above or below." But he didn't deny that you'd need a plumber to make changes to connect a rack to your chiller any time you needed to move the servers. LaForce argued that Rackable's passive cooling design, which releases hot air through the center of the rack, means you don't need to consider plumbing when you move things around. But Willeford insists this isn't, ahem, a hot issue for CIOs.

55% Server heat reduction claimed by IBM and Rackable Systems.

Speaking of IBM . . .

. . . its audioconference deal with Avaya Inc. in Basking Ridge, N.J., promises to let you click on a person's name and ring them up on the phone via Avaya Meeting Exchange in upcoming releases of Notes collaboration tools and its SameTime instant messaging technology. Sean Poulley, vice president for business development at IBM's Lotus division, says the upgrade, due late in Q4 for SameTime and early in Q1 2006 for Notes, also lets you manage voice functions during Web conferences. That little feature can come in handy when someone is prattling on too long during your conference. **56254**

POULLEY pushes clicking, then chatting.

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New Novell Tools Link Linux, Windows Systems

Upgrade lets users manage their PCs from Linux servers

BY MATT HAMBLEN

NOVELL INC. today plans to announce that an upgrade of its ZENworks software will ship on Friday with complete life-cycle management capabilities for Linux systems and support for managing Windows PCs from servers running Linux.

The ZENworks 7 Suite was supposed to be released in the second quarter, according to a road map that Novell provided at its BrainShare user conference in March. Richard Whitehead, Novell's director of product management, said last week that the product was delayed because the company only "ships products that meet customer needs on Day 1."

Richard Kebo, manager of network services at the Clovis Unified School District in Fresno County, Calif., said he will upgrade to ZENworks 7 as soon as possible, moving from ZENworks 6.5, which he has been running for the past nine months.

The Clovis school system, which has 36,000 students, plans to continue using its 10,000 Windows desktops. But Kebo said he wants to move from Windows servers to Linux-based systems and standardize on a single management tool that can handle both Linux servers and Windows PCs. ZENworks 7 will provide that flexibility, said Kebo, who has been beta-testing the new software since March.

Switching more systems to Linux should increase server stability and security and enable the school district to reduce the number of servers it uses, which now stands at 200, he said. Only a few of the existing servers run Linux.

"We want to minimize our Windows servers," Kebo said. "The Linux servers are always up, and we definitely have had problems with Windows servers. For some reason, the servers would stop and we had to reboot."

The Clovis schools first became a Novell customer a year ago. It installed Novell's eDirectory software after deciding during a competitive evaluation that Microsoft Corp.'s Active Directory didn't provide "anywhere near" the functionality of the Novell product, Kebo said.

He also was impressed by Novell's Linux direction, which over the past two years has included the release of its NetWare services on the Linux kernel and the acquisition of vendors such as SUSE Linux AG and Ximian Inc.

The Linux management software that's part of the ZENworks suite is based on Ximian's technology, which previously was called Red Carpet Enterprise. ZENworks 7 adds a variety of features for managing Linux systems, such as a remote administration tool (see chart).

Fred Broussard, an analyst at IDC in Framingham, Mass., said the new version enhances Novell's already solid ZENworks offering by increasing the software's ability to manage mixed networks with both Linux and Windows. But more significantly, "it heralds Novell's increasing independence from NetWare," which has been buffeted by a persistent decline in revenue in recent years, he said. **56303**

UPGRADED SOFTWARE

ZENworks 7 Suite

ADDS centralized system imaging, configuration lockdown and remote management capabilities for Linux systems.

EXTENDS Novell's policy-based management automation capabilities to Linux machines.

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IBM, Geographic Society Team on Project to Trace Human Migration

$40M effort aims to collect and mine 2TB of data

BY MATT HAMBLEN

IBM last week announced that it has begun to deploy custom data-gathering software developed jointly with the National Geographic Society as part of a five-year project to map how the Earth was populated and how tribes and other groups may have migrated through the ages.

Under the Genographic Project initiative, hundreds of thousands of human DNA samples will be gathered worldwide and stored in a 2TB database at the National Geographic Society's headquarters in Washington.

The project will be daunting in its complexity, said Ajay Royyuru, senior manager of IBM's Computational Biology Center. For example, blood samples and personal information will be collected from more than 100,000 indigenous people by thousands of researchers, many using Linux-based ruggedized laptops equipped with fingerprint readers for security purposes, Royyuru said.

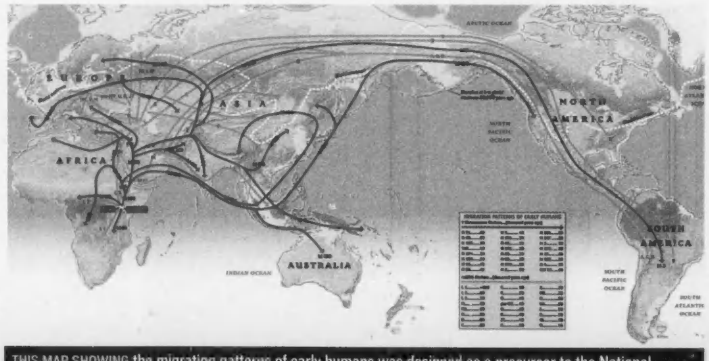
When the undertaking was first detailed in April, project director Spencer Wells, an explorer in residence at the National Geographic Society, dubbed it the "moonshot of anthropology" and said it was designed to fill in gaps in our understanding of human history.

The data-gathering work is so massive that it poses an interesting integration case study for IT managers, said Peter Rodriguez, who holds a distinguished engineer title at IBM. Ten universities around the world will work together to collate and analyze the data, but all had been using their own spreadsheets, which have now been unified, he noted.

"We tend to think scientists are very advanced, but they are not necessarily advanced in the different ways they collect data," Rodriguez said. "We see ourselves beating them into submission to play with one another."

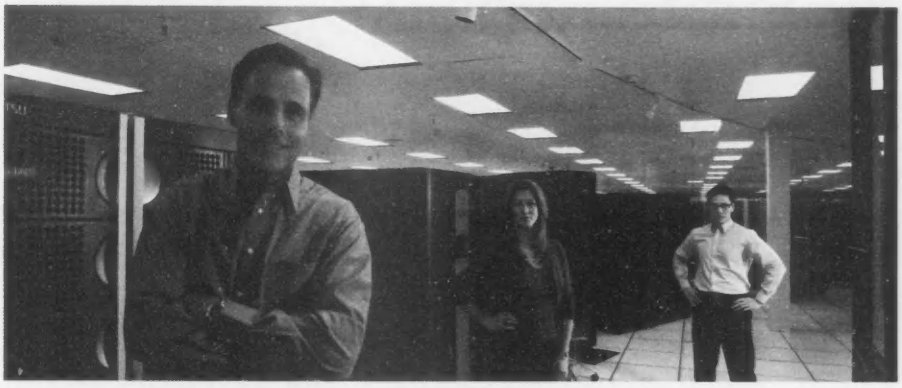
At field labs that are being set up as part of the project, phenotypes from subjects — such as their hair and skin colors — will be matched to genetic sequencing from blood samples, Rodriguez said. The data then will be converted into XML objects for transmission to the universities and the central database, accompanied by geographic coordinates showing where each participant was interviewed.

Royyuru estimated the total cost of the project at $40 million, primarily to cover years of salaries for thousands of researchers. But the software development process has posed challenges from a data mining perspective, he noted. "The lessons we have learned are clearly something we will replicate in other projects," Royyuru said. **56316**



THIS MAP SHOWING the migration patterns of early humans was designed as a precursor to the National Geographic Society's Genographic Project, which will provide more detailed data.

All IT Systems



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BRIEFS

EMC Agrees to Acquire Rainfinity

EMC Corp. has agreed to purchase Rainfinity Inc., a network file virtualization software vendor, in a deal the company valued at less than $100 million. Privately held Rainfinity, which employs 60 workers, sells virtualization software for Windows, Unix and Linux systems to simplify management and make it easier for users to perform data migrations.

Sun Misses Ship Date for StarOffice

Sun Microsystems Inc. has missed the targeted release date for StarOffice 8, according to its Web site. The productivity suite was originally slated to ship last month, but Sun acknowledged that Version 8 isn't yet available. A Sun spokesman declined to reveal when it will be released. Sun previewed a beta release of StarOffice 8 at the LinuxWorld Conference & Expo in Boston last winter.

AMD Hires IBM Vet To Run Design Unit

Advanced Micro Devices Inc. has tapped a former IBM executive to take charge of its silicon design efforts. Jeff VerHeul, a 25-year IBM veteran, was named corporate vice president of silicon design. He will be responsible for all of the company's future computing products. VerHeul had been the head of IBM's Engineering & Technology Services unit.

Symantec Buys Sygate Technologies

Symantec Corp. has agreed to acquire Sygate Technologies Inc., a maker of software that enforces enterprise network security policies, for an undisclosed price. Symantec plans to integrate Sygate's Enterprise Protection product, which includes a firewall and intrusion-prevention software, into its Symantec Client Security product.

Sabre Replacing EDI With Web Services

Looking to gain flexibility of SOA

BY HEATHER HAVENSTEIN

SABRE HOLDINGS CORP. has launched a project to replace its electronic data interchange (EDI) system for connecting to airlines, hotels and other suppliers with Web-services-based integration.

The parent company of Sabre Travel Network, Travelocity.com LP and Sabre Airline Solutions plans to replace a 15-year-old EDI system with Web services by using SeeBeyond Technology Corp.'s Integrated Composite Application Network (ICAN) suite as its integration platform.

Sabre will be completing a pilot project in October to connect with one undisclosed supplier using Web services, said Bob Offutt, senior vice president and chief architect of strategic architecture at the Southlake, Texas-based company.

The SeeBeyond tools will provide business rules and connectivity to replace Sabre's high-speed, real-time EDI system, which doesn't have the flexibility of a service-oriented architecture, Offutt added.

Offutt declined to disclose the cost of the project or the value of the contract with Monrovia, Calif.-based SeeBeyond, which has agreed to be acquired by Sun Microsystems Inc. [QuickLink 55272].

"SeeBeyond will give us the ability to have multiple connectivity scenarios, depending on the flavor and language of XML," he said.

Offutt said the company has begun discussions with other suppliers in the U.S. and the U.K. for rolling out the tools.

At many sites, Web services adoption is being driven by companies looking to replace expensive EDI transactions, said Anne Thomas Manes, an analyst at Burton Group in Midvale, Utah.

"It is a much less expensive pipe, and it gives you more flexibility for the types of messages you can send and operations you can perform," she said. "A business-to-business connection that used to take two months to set up with EDI can be set up in a couple of hours with Web services."

Sabre also plans to use the ICAN tools internally to orchestrate Web services as it continues an effort started five years ago to migrate applications from its IBM mainframe to distributed systems.

The company has already used Web services to extract business logic and data from its mainframe for hotel and domestic airline reservations.

But it will need the orchestration tools for its core travel-packaging application, which allows users to book airline, hotel and rental car reservations at the same time. This core application still resides on the mainframe.

With reusable Web services, Sabre has quickly created a new shopping-cart application and built a managed inventory product that gives airlines more-sophisticated options to manage seat prices to create the highest yield, Offutt added. **56322**

PRODUCT FEATURES

SeeBeyond's ICAN Suite

- Provides core integration, including system connectivity, guaranteed messaging and transformation.
- Orchestrates and automates complex business processes and workflow.
- Automates business-to-business interactions.
- Generates business-activity applications to monitor performance.

JBoss Program Aims to Ease Migrations From WebLogic

BY HEATHER HAVENSTEIN

JBoss Inc. last week introduced a program it hopes will entice more companies to use open-source application server software.

Through its new JBoss Migration Program, the Atlanta-based company aims to provide assessments, methodologies and tools to help customers move software from commercial application servers to the open-source JBoss software.

The first iteration of the program targets companies looking to migrate from BEA Systems Inc.'s WebLogic application server to JBoss, said Joe McGonnell, director of marketing at JBoss.

The company plans to tailor the program for migrations from IBM's WebSphere offering in the future, he added.

The JBoss program targets companies like NLG Inc., a Woburn, Mass.-based travel company that plans to migrate a mission-critical application from WebLogic to JBoss over the next 10 months.

Jamie Cash, NLG's vice president of technology, said he would likely use such a migration program to move the application. Two years ago NLG migrated a legacy green-screen booking reservation system to JBoss, and the company calculated that it saved $1 million in licensing fees by not using a commercial application server, Cash said.

NLG initially had concerns about JBoss' long-term performance, but Cash said the application has performed "extremely well" since its installation. Fears that JBoss would make changes that would require NLG to rework its application have also proved to be unfounded so far, Cash said.

Ahead of the Curve

CitiStreet LLC, a Quincy, Mass.-based benefits provider, tapped JBoss as its application server standard for all new projects more than a year ago, prior to the availability of migration tools, said CIO Barry Strasnick.

The company began a migration from WebLogic to JBoss 18 months ago and has now moved all of its mission-critical applications to the open-source server.

"We had a need to dramatically increase the hardware resources available to our J2EE layer, and do it quickly," Strasnick said. "BEA had what we considered to be excessive licensing costs in order to support these increased resources."

With JBoss, the company has better scalability, availability and support, he added.

Shawn Willett, an analyst at Current Analysis Inc. in Sterling, Va., said companies switching from commercial application servers to JBoss usually migrate because of lower licensing costs, especially now that the basic J2EE layer has become a commodity.

However, he noted that commercial application servers still have the edge in terms of high-end features for availability and management.

In related news, a group of vendors, including Infravio Inc., Sonic Software Corp., Iona Technologies PLC and WSO2, this week will announce an incubator project to develop an open-source enterprise service bus as an Apache Software Foundation project. **56333**

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GLOBAL DISPATCHES

An International IT News Digest

Component Costs Rise, But PC Prices Won't

TAIPEI

COSTS ARE on the rise for several types of PC components, including memory chips and LCD screens, because of high demand. That's a concern for procurement managers at PC makers such as Dell Inc. and Hewlett-Packard Co., but analysts said IT buyers should have little to fear from the increases.

Prices of the most widely used computer memory components, 256Mbit double data rate chips that run at 400 MHz, could reach $3 per chip by the end of this month, up 27% from June, according to iSuppli Corp., a market research firm in El Segundo, Calif. In addition, the price of notebook-size LCDs rose 6% over the past two months, iSuppli said.

However, IT buyers probably won't see any increases in the prices they pay for PCs, said Bryan Ma, an analyst at IDC's office in Singapore. PC prices remain on a downward spiral, and little is going to change that, he said. When component prices rise, PC makers typically reconfigure their systems to keep costs down, Ma added.

■ DAN NYSTEDT, IDG NEWS SERVICE

GLOBAL FACT

1.7B

Number of cellular users worldwide this year, which is projected to increase to 2.5 billion by the end of 2010.

Source: Strategy Analytics Inc., Newton, Mass.

Swiss Bank Signs Deal For Dell PCs, Support

UBS AG, a Zurich-based banking group, has signed a four-year contract with Dell to replace and manage more than 30,000 desktop and notebook computers at UBS branches around the world. The deal, which Dell announced last week, is worth more than $50 million (U.S.), according to a spokesman for the IT vendor.

"By standardizing the PC infrastructure worldwide, we can achieve a substantial cost reduction," Scott Abbey, chief technology officer at UBS, said in a statement.

Dell said it will provide an array of managed services to UBS, including installation, technical support and asset management; it will also migrate the bank to the Windows XP operating system. The new computers — Dell OptiPlex GX280 desktops and Latitude D410 and D610 notebooks — will be manufactured to UBS's specifications and delivered with a set of customized applications installed.

$500M Project to Boost Broadband in West Africa

LUSAKA, ZAMBIA

A NEW YORK COMPANY founded by a group of Africans and African-Americans plans to develop a fiber-optic network that will provide high-speed Internet access in West Africa and ultimately connect that region to Europe, the U.S. and Asia, officials said last week.

The $500 million project is being undertaken by the New York-based Infinity Worldwide Telecommunications Group of Companies (IWTGC). The fiber-optic installation will compete directly with the existing SAT-3 transcontinental network, which is owned by a consortium of 36 national telecommunications companies.

Initially, the IWTGC's undersea cable will run from Portugal to Cameroon along the coast of West Africa and link Nigeria, Benin, Liberia, Senegal, the Ivory Coast and Ghana. The goal is to have the new network operational by 2008. **56289**

■ MICHAEL MALAKATA, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

Novell Inc. and China Standard Software Co. (CS2C), building on a partnership formed in April, announced last week that they will jointly develop Linux-based server and desktop software aimed at the Chinese market. CS2C is a Shanghai-based software vendor that was founded in 2003.

■ JOHN BLAU, IDG NEWS SERVICE

HP last week announced a free IT hardware recycling service for business customers across much of Europe, in accordance with the European Union's new Waste Electrical and Electronic Equipment directive. The directive makes vendors responsible for taking back and recycling electrical equipment.

■ JAMES NICCOLAI, IDG NEWS SERVICE

Covansys Corp., an IT services and outsourcing firm based in Farmington Hills, Mich., last week inaugurated a global development center in Bangalore, India, to accommodate its growing offshore business. The center consolidates multiple Bangalore offices in one building and has the capacity for 2,200 IT workers, Covansys said.

Gas Price Increases Spur Interest in Telecommuting

BY MATT HAMBLEN AND PATRICK THIBODEAU

As gasoline prices spiked last week by 10 to 20 cents per gallon around the country, corporate managers said there's a renewed interest by employees in telecommuting from home via computer and broadband to avoid lengthy and expensive drives to work.

IT executives last week said any sizable boost in telecommuting won't require significant new spending or inconvenience for their operations.

The executives noted that widely used technologies such as Web collaboration tools should help ease problems faced by new home workers.

In addition, broadband connections are becoming so commonplace that IT should have little problem helping teleworkers gain access to a big pipe running a virtual private network (VPN) and to big files stored on corporate servers, managers said.

In fact, "telecommuting isn't a technology challenge as much as a cultural challenge," said Skip Snow, an IT executive at a major financial institution he asked not to be identified.

"The problems with telecommuting don't have as much to do with technology and tools as with whether a worker or manager will work as well with a guy on the phone as compared with the guy in the next office," said Snow, who telecommutes because he lives a long distance from his job.

Snow said he can work on any computer virtually anywhere using a smart-card equivalent for a password and a company portal.

Teleworkers at General Electric Co.'s GE Energy division in Atlanta must have access to a broadband connection to access the company's VPN. The GE unit also uses a third-party hosting service for telecommuters that lets mobile workers connect to internal corporate systems via a Web browser when they are in airports and other places, said Larry Tardell, Southeast infrastructure operations leader at GE.

The GE Energy division, which supplies home computers and a broadband connection to telecommuters, has cut its office workstation requirements by 50 systems.

> **"Telecommuting isn't a technology challenge as much as a cultural challenge."**
>
> **SKIP SNOW,** IT EXECUTIVE AT A MAJOR FINANCIAL INSTITUTION

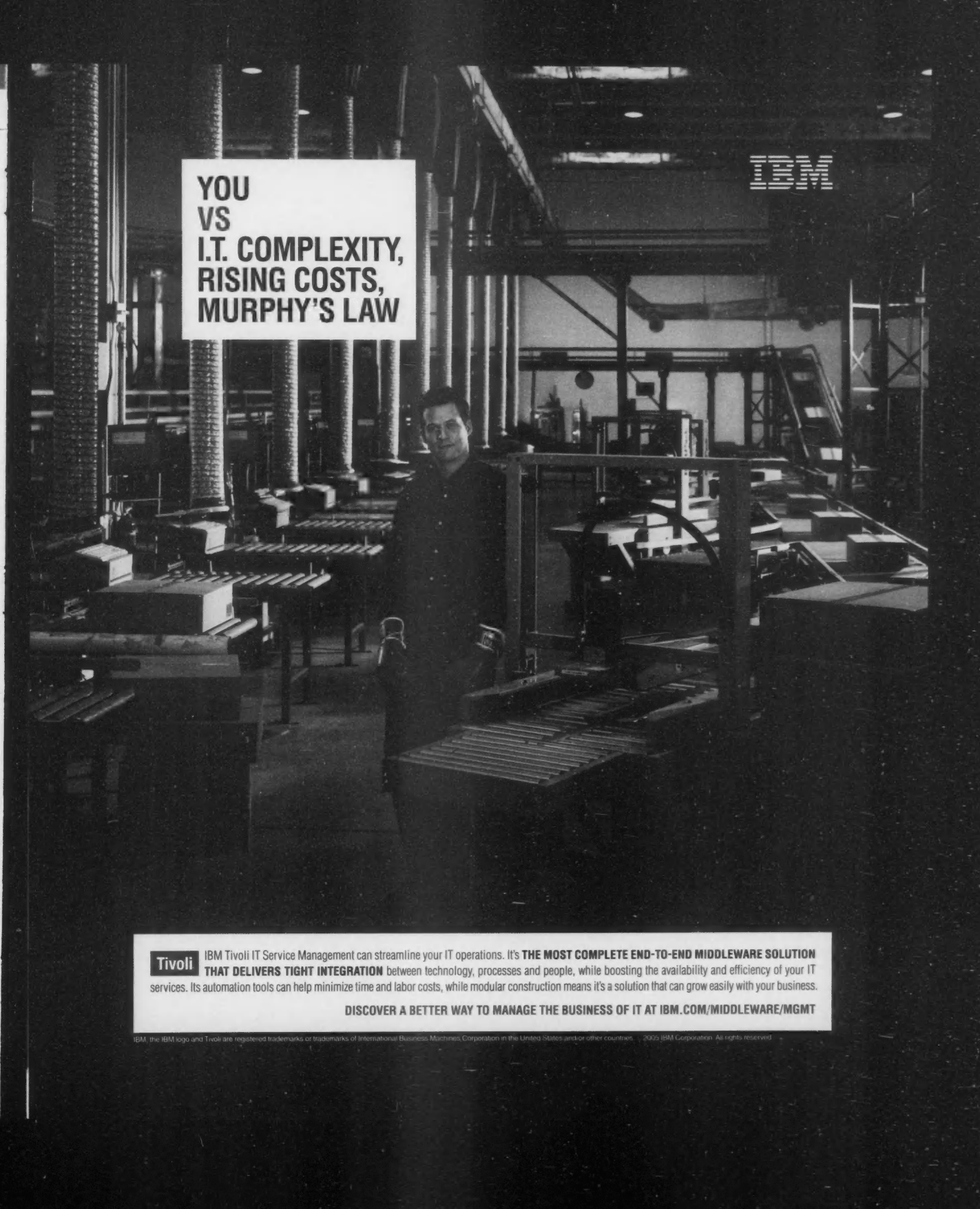
Each such system costs the company about $15,000 a year in real estate and related costs, so the annual savings can be significant, said Kate Lee, manager of community affairs.

Snow said that as real estate expenses rise, the corporate costs of supporting telecommuters might become insignificant to corporate budget makers. "It's not expensive to telecommute," he said.

And large companies might find it advantageous to have workers telecommute to better distribute the workforce and lessen the impact of a potential catastrophe at a central facility.

The biggest concerns in setting up effective telework programs have been over proper supervision of workers and ensuring that home systems are secure, managers said.

Jane Franklin, a special projects coordinator overseeing telework and van pooling at Georgia Power in Atlanta, said about 475 teleworkers must adhere to a set of guidelines for telework. The guidelines subject workers who introduce a virus into the company network to having remote access disabled for two days. Once a worker introduces a third virus, his remote access is permanently disabled. **56334**



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Continued from page 1

Hackers

systems administrator at the Waukegan, Ill.-based distributor of packing and shipping materials.

The Windows 2000 bugs caused infected systems to restart repeatedly and could allow remote attackers to take control of compromised systems. According to vendors of antivirus software, the malware targeted only older, Windows 2000-based systems.

Although none of those 11 or so worms are considered particularly serious by most security experts (see story at right), they serve as a sobering illustration that hackers can take advantage of new flaws before many companies can patch them, said John Pironti, a principal security consultant at Unisys Inc. in Blue Bell, Pa.

Worm Wave

- Eleven worms were unleashed last week, taking advantage of a flaw in a plug-and-play component of the Windows 2000 operating system.
- Worm variants were based on three families: Zotob, Bozori and Ircbot.
- They caused infected machines to restart repeatedly.
- Previously patched systems were unaffected by the worms.

"I think these attacks show that there is still a fair bit of latency" between patch release and deployment in a lot of companies, agreed Fred Rica, a partner at PricewaterhouseCoopers in New York.

"Hackers have adopted new attack techniques," Pironti said. "Instead of going out and looking for vulnerabilities on their own, they are waiting for patches to be released to see what holes are being fixed." Then they go after those holes as quickly as they can, he said.

The trend could leave many companies dangerously exposed, especially large ones that typically test and analyze patches before deploying them, Pironti said.

"They have to assume that they are going to be vulnerable to attack from the moment a patch is out," he said. "They need to have countermeasures in place while the patches are tested" and deployed.

Enterprises should look at implementing the equivalent of the color-coded threat system used by the U.S. Department of Homeland Security when dealing with newly disclosed flaws, said Dave Jordan, chief information security officer for the government of Arlington County, Va. Once new flaws are disclosed, Jordan said, IT security personnel "should conduct business differently than they would day to day." They need to implement countermeasures as soon as possible to mitigate risk, he said.

Measures can include conducting thorough threat analysis, gaining an understanding of specific risks of new flaws, shutting down systems where possible, blocking access to affected ports and using intrusion-detection and -prevention systems to monitor for unusual activity and network behaviors, security experts said.

A vast majority of worms and viruses, including those launched this week, use common methods and take advantage of common flaws — such as buffer overflows — to attack vulnerable systems, said Thor Larholm, a senior security researcher at PivX Solutions Inc. in Newport Beach, Calif.

Instead of relying solely on patches to fix every new flaw, it's better to address some common underlying vulnerabilities, he said. "There are multiple ways to protect against entire classes" of vulnerabilities without having to apply patches for each one, he said.

PivX is one of several vendors, including Immunix Inc. and eEye Digital Security, that sell tools to repair generic buffer overflows in the absence of vendor patches.

"About 90% of the worms out there can be mitigated just by hardening your systems," Larholm said. For instance, disabling so-called null-session accounts, which are enabled by default on Windows 2000 systems, would have prevented this week's worms from taking advantage of the plug-and-play flaw, though it is not always practical, he said. **56329**

Carol Sliwa contributed to this story.

Patching Efforts Help Users Fend Off Worms

About 15 IT staffers at Delaware Investments Inc. had to work late into the night last Tuesday to patch Windows 2000 systems so that Zotob and the other new worms wouldn't wreak havoc on the company's business operations.

But more commonly, Windows 2000 users who responded to a random e-mail poll conducted by *Computerworld* reported no impact, thanks to diligent preventive patching of their systems or, in some cases, emergency fixes. Only three of 20 respondents said their companies felt some effects from the string of worms targeting unpatched PCs and servers.

Jeff Goldman, a systems administrator at Philadelphia-based Delaware Investments, said the Lincoln National Corp. subsidiary was affected for a short period of time but managed to stop the worms and apply the necessary patches with no downtime for its operations. "Thankfully, not much business was disturbed," Goldman said.

In the wake of the attacks, Delaware Investments plans to make buying software that will help with the deployment of patches a top priority, he added. IT staffers had already evaluated several products, including Microsoft's Windows Server Update Services and BMC Software Inc.'s Marimba tools. Now the company is "willing to spend whatever is necessary to make sure this doesn't happen again," Goldman said.

Roger Wilding, a senior technical engineer at a global shipping and supply chain services firm that he asked not be identified, said his company's IT staff uses Microsoft's Systems Management Server software to deploy patches. That has helped the company ensure that most of its systems have Microsoft's latest security fixes and software-update service packs, he added.

"You need to build your infrastructure to support continual patching of systems, regardless of the operating system," Wilding said.

Neville Teagarden, CIO at ProLogis, a real estate investment trust in Aurora, Colo., said automated antivirus and software update tools from Altiris Inc. that the company deployed during the past year have also helped it to avert major security problems.

Typically, patches are automatically fed into a test environment. But Teagarden said that based on the risks posed by Zotob, ProLogis decided to shorten its test cycle and immediately deploy Microsoft's patch.

Likewise, Kindred Healthcare Inc. in Louisville, Ky., made an emergency deployment of the patch to its servers last Tuesday night, said Rob Rhodes, a technical consultant at the company. Kindred had already patched "a high percentage" of its desktops before the worms were released, he said.

The worms attacked systems at 13 of DaimlerChrysler's 23 North American manufacturing and assembly plants, according to spokesman Dave Elshoff. Production disruptions ranged from five to 50 minutes, Elshoff said. The automaker is still assessing the damage from the worms but should be able to easily make up the lost work, he added.

– Carol Sliwa

MORE ON THIS TOPIC

In this issue: Neither vendors nor users have learned their lesson about worms, says Frank Hayes. **Page 46**

Online: Read full coverage of IT security issues on our Web site:
QuickLink k1600
www.computerworld.com

Win 2k Bugs Called 'Routine'

Despite the media frenzy, none of last week's slew of worms targeting a Windows 2000 vulnerability was all that unusual or serious, security experts said.

"We would not characterize this as a widespread problem. The worms were similar in nature to worms we routinely see on the Internet," said Debbie Fry Wilson, director of Microsoft's Security Response Center.

"There was nothing unusual about the exploit code or the type of worms created," she said. "The difference here was that you had an unusual number of media outlets that were impacted," resulting in a lot of publicity. The bug hit outlets such as CNN, *The New York Times* and ABC News.

Similar worms are spread "all the time," noted Ero Carrera, a virus researcher at F-Secure Corp. in Helsinki, Finland. "There was no major new trend or techniques that made these worms particularly virulent."

No estimates were available late last week on the extent of the damage caused by the worms, though most antivirus vendors assessed the worms as medium- to low-risk threats.

Trend Micro Inc. rated two of 10 of the worms as a medium risk, while the rest garnered a low-risk rating. Rival antivirus vendor McAfee Inc. pegged only one of 10 on its list as medium risk, with the rest said to be low risk.

Even so, it would be a mistake to underestimate all the worms, warned an advisory from security vendor Arbor Networks Inc. in Lexington, Mass.

"Arbor Networks has received calls from a number of large companies that have been devastated by Zotob," one of last week's Windows 2000 worms, the advisory said. The appearance of several Zotob variants, including one that spreads via e-mail, could portend problems for companies, Arbor warned.

– Jaikumar Vijayan

Trust.

"Computerworld's approach of using real-world testimonies is really the key. If I wanted a vendor opinion, I'd call a vendor up . . . so when I see my peer talking about security challenges and when I see my peer talking about technology innovation, it has much more weight."

Steve Bandrowczak, VP CIO, DHL Express

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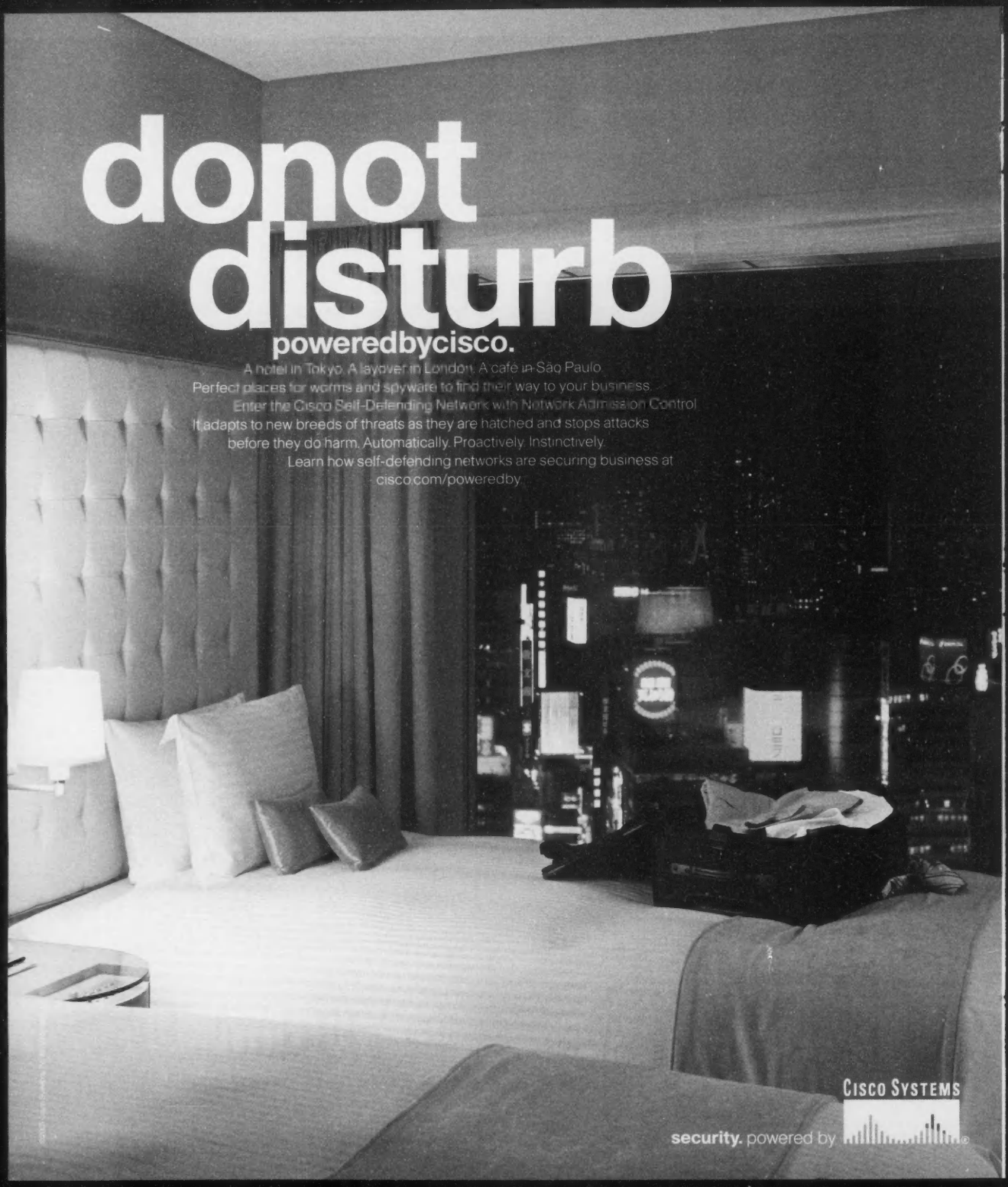
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Analytics Push Helps Siebel Win Sierra Health Deal

BY STACY COWLEY

Siebel Systems Inc.'s recent moves to bolster the analytics capabilities in its software have paid off in at least one new customer win. Sierra Health Services Inc. said last month that it has picked Siebel to underpin a $5 million CRM overhaul, and its CIO cited the vendor's analytics offerings as a major factor in the deal.

The Las Vegas-based health care company uses a 6-year-old CRM system built around software from Onyx Software Corp. to track interactions with its 580,000 customers. Because the hardware and operating system software supporting the system are approaching retirement age, Sierra Health decided to start over from scratch.

"It was highly customized, and that creates roadblocks to be able to upgrade cost-effectively," said CIO Bob Schaich. "We knew we essentially had to have a complete replacement."

Sierra Health initially considered a number of vendors before narrowing its list to Siebel and Bellevue, Wash.-based Onyx. After several months of due diligence, Sierra Health opted for Siebel. "[The analytics software] was a real value-add for us," Schaich said. "Onyx has some similar products, but we felt the Siebel analytics would be a better fit for our environment."

An Onyx spokesman didn't return a call seeking comment.

Fast-Growing Product Line

Analytics has become one of Siebel's fastest growing product lines, with software license revenue rising 44% last year, to $111.6 million, and accounting for more than 22% of the company's total annual license revenue, according to Siebel's annual report.

In June, CEO George Shaheen cited analytics as one of four key growth areas for San Mateo, Calif.-based Siebel.

IDC analyst Robert Blumstein said Siebel has done a solid job of growing its analytics business. "That has been the bright spot in their revenue picture over the last several years," he said.

Sierra Health is planning a phased rollout of the new system. The first product, individual insurance, is scheduled to go live by the end of the year. The CRM overhaul includes software, hardware, services and third-party applications, Schaich said. 56288

Cowley is a reporter for the IDG News Service.

Southern Burger Chain Beefs Up Wi-Fi Access to All 243 Stores

Krystal says the service has attracted new customers to restaurants

BY TODD R. WEISS

A year after offering free wireless Internet access to customers in 52 company-owned restaurants in the South, The Krystal Co. hamburger chain has expanded the service to all 243 of its locations.

The free Wi-Fi service is bringing in new customers and has improved internal communications for Krystal's own mobile workers, said David Reid, CIO at the Chattanooga, Tenn.-based company. Krystal began the service in 52 restaurants in June 2004.

The deployments were completed last month in company-owned restaurants in 12 states.

The service is attracting new customers, Reid said, though the evidence so far is only anecdotal. Based on customer interviews, "we know for a fact that there are people who come here to Krystal just for the hot spots," he said.

Records of IP and media access control addresses that have accessed the network show that about 1,000 wireless computers have used the free Wi-Fi network, Reid said.

Krystal's mobile workers have benefited from the wireless system while on the road. "It has made our workforce so much more efficient," Reid said. "We're seeing huge gains in our own productivity and our communications. If the customers find it beneficial, then that's just gravy."

When the Wi-Fi service was proposed, the company quickly chose to provide it for free, Reid said. "It's so simple to provide free wireless, and it's incredibly complicated to charge for it," he noted.

Krystal HotSpots use a broadband Internet connection that allows up to 32 users to simultaneously access the 802.11b network.

Ken Dulaney, a wireless analyst at Gartner Inc. in Stamford, Conn., said Wi-Fi is often being used by companies to "attract people to hang around," potentially generating additional sales.

"More and more organizations are doing it. They've got the broadband in there for their own use" and are able to expand it for the use of customers, Dulaney said. "It's more mainstream than two years ago." 56286

DON TENNANT

Axing the Axis

LAST APRIL, during a four-day official visit to India, Chinese Premier Wen Jiabao sent shivers through many IT pros in the West. He proclaimed that a combination of Indian software skills and Chinese hardware expertise will propel the two countries to a leadership position in global IT.

"When that particular day comes," Wen trumpeted, "it will signify the coming of the Asian century of the IT industry."

DON TENNANT is editor in chief of *Computerworld*. You can contact him at don_tennant@computerworld.com.

It was a disturbing vision for many people who had already been fretting over the loss of jobs to those countries. The thought of an Asian IT axis that would present an even more formidable threat didn't sit well at all.

I could have told them then that they had nothing to worry about, but I would have been deluged with more irate mail from readers scoffing at my rose-colored glasses. And our IT guys were already mad at me for hogging space on the e-mail server.

But I bring it up now because there was a good example last week of why all the hand-wringing was unnecessary, and it's worth recounting.

Just four months after Wen's visit to India, during which he toured the massive Bangalore R&D operations of China's Huawei Technologies (think of Huawei as China's Cisco Systems), the Indian government made it clear that it has no intention of getting too chummy. *The Times of India* reported last week that Huawei, which has more than 900 engineers in Bangalore and has announced plans to invest $100 million in its Indian operations, is being kept at a safe distance from India's core telecommunications infrastructure for security reasons.

According to the article, several Indian government agencies, including the RAW (the Research and Analysis Wing, India's CIA) have concluded that Huawei poses a specific threat. The RAW stated that Huawei "has been responsible for sweeping and debugging operations in the Chinese embassy. In view of China's focus on cyber warfare, there is a risk of exposing our strategic telecom network to the Chinese."

Moreover, India's Ministry of External Affairs cited concerns over Huawei's "links with the Chinese military and intelligence establishment, their clandestine operations in Iraq and Taliban-ruled Afghanistan, and their close ties with the Pakistan army."

None of that means Huawei shouldn't be engaged by India and the rest of the international community. History has demonstrated that engagement yields a lot more positive change than the alternative does. There's no question, for example, that Huawei's 2-year-old joint venture with 3Com helped the Chinese firm recognize the essential nature of honoring other companies' intellectual property. An isolated Huawei would have been far less likely to end its violation of Cisco's intellectual property rights, as it did last year.

But last week's development does demonstrate why Wen's vision of a two-country IT powerhouse is untenable. Name any two or three countries, and try to imagine them forming a successful union if their purpose is to lead or dominate. There will always be political and economic reasons why it will never happen. The union will succeed only if it obviates domination by becoming global.

There will be no Asian century of the IT industry, just as there will be no African or European or North American or South American century of the IT industry. The day we can all look forward to is the one when the IT industry, along with every other economic and professional sector, is truly global.

The axis-of-power idea has been tried. Thankfully for all of us, it didn't work. **56292**

Don Tennant

BRUCE A. STEWART

Why People Don't Use Information

DOES IT SEEM that the more information you provide, the less it gets used? Why is it that information technology is so good at the technology part and can't seem to get the information part going?

Part of the problem is that we confuse what our systems need in order to work efficiently with what any of us need in order to answer a question. (There's a reason Google has an $80 billion market cap while you're considered a cost center.)

Yes, our systems need structured data to work well. So when we load up a data warehouse for all those questions (that we don't receive), what should we do differently?

BRUCE A. STEWART is a former CEO and one-time senior vice president and director of executive services at Meta Group Inc. He is now an executive adviser in Vancouver, British Columbia. He can be contacted at bruce@bastewart.com.

Think of the warehouse as a knowledge manifold. This is a structured information architecture supporting strategies for focusing on items or ignoring them. Like in the Google model, this is one vast pool of information that seems to shift its shape depending on what's asked of it.

Unlike Google's, our manifold can certify its contents — nothing is in it that can't be traced back to a trusted source. In other words, it can contain information that interprets other information.

To help users deal with their questions, the manifold is composed from three different roles, some of which might be in IT and some in other areas, such as finance or plant scheduling.

- The **cartographer** adds information that puts other information in context. One example might be a historical exchange-rate table that lets users interpret older financial results from different divisions. Cartographers also create "big picture" maps. (All these items make up what you need to know to understand the flow through this plant.)
- The **librarian** fills the maps, identi-

fying what is certified (comes from internal sources), what is uncertified (is added from outside sources) and what is missing.

- The **composer** creates new interpretations, typically as a result of doing more work to augment the information.

There are also four roles that are fulfilled to support questioning. Again, these are scattered throughout the organization, not just in IT:

- A **coach** helps users by encouraging them to ask questions. Typically, this is a role carried out by managers — but managers in turn need to learn how to use those requests to develop their staff.
- Knowledge **preachers** need to provide live answers on demand when the warehouse isn't enough. (These are the "experts" who can be called upon when needed.)
- A **plumber** keeps preachers from being inundated with requests from people who are unwilling to use the tools provided. (This is a great growth role for a help desk person.)
- Finally, managers and significant peers act as **mentors** to help motivate more questioning.

Let's be clear: These are not usually jobs, but rather ways of looking at issues. One person may fulfill all of these roles in the course of his workweek. A person can be a preacher in his area of competence and need a preacher when he's outside his normal work competence.

Some of you by now might be saying, "This is knowledge management or learning theory; how does it apply to data warehouses and getting people to make more use of them?" If we're to fulfill our information destiny and not just our technology destiny, we're going to have to start thinking about the questioner, not just the tools to generate an answer. Get this right, and justifying the next warehouse investment will be a snap. **56218**

MICHAEL H. HUGOS

Re-evaluating Accountants

WHEN I WAS ASKED to speak at the annual convention of a well-known professional association of management accountants, I accepted with some trepidation. I don't hold being an accountant against anyone, but with the advent of ERP systems, it seems that we IT folks have been on the receiving end of a lot of accountant-caused grief.

MICHAEL H. HUGOS is CIO at Network Services Co., a distribution cooperative in Mount Prospect, Ill., that sells food-service and janitorial supplies. He is the author of *Building the Real-Time Enterprise: An Executive Briefing* (John Wiley & Sons Inc., 2004). He can be reached at mhugos@nsconline.com.

In many cases, I felt, it was accountants who decided to buy those infernal ERP systems, and IT got stuck with the thankless task of installing them. Accountants insisted on making endless software modifications, and we got blamed for the cost overruns. Once the systems were installed, the accountants used those systems to spin the numbers and park obscure charges on our IT budgets. While we were busy struggling with balky computer systems, they were busy devising devilish new cost-allocation schemes.

I resolved to keep these dark thoughts about the accounting profession to myself and at least try to give dialogue and diplomacy a chance. My presentation was surprisingly well received, and members of the audience asked interesting and thoughtful questions. That evening, my hosts arranged a dinner. Along with some fine seafood, they served several bottles of excellent wine. I hadn't realized that people of the accounting persuasion had such good taste. I began to relax ever so slightly. People began to speak a bit more frankly.

Imagine my surprise when I heard that accountants are feeling equally threatened by IT people. How could this be? Well, it turns out that with the advent of ERP systems, many of the time-honored activities of the accounting profession have been automated. Gone are the days when accountants could spend the better part of a month doing a month-end close. Gone are the days when only accountants could see the numbers and everyone else had to go hat in hand to the accounting department to get a profit-and-loss statement.

Many accountants are having a real crisis of confidence. "If people can get their own financial reports without accountants, what do they need us for?" they asked. "IT people and their infernal ERP systems are putting us out of business."

This was astounding. "What do you mean 'IT people and our infernal ERP systems'?" I asked. "I thought it was you guys who had us put them in."

"No," they told me, "it wasn't us." That night, I heard stories about smooth-talking consultants in league with glad-handing software vendors calling on gullible executives. I heard stories of orders issued from plush corner offices and corporate checkbooks opened to legions of strangers.

I began to feel embarrassed. I thought about some of the ungenerous and downright unkind things I have said about accountants in moments of stress and fear. We began to have a meeting of the minds. We agreed that these infernal ERP systems are threatening all of us. These systems make it easy for companies to outsource IT operations, and they make it way too easy for nonaccountants to see the numbers.

As we shook hands at the end of the evening, I realized that heretical thoughts were causing me to question some dearly held beliefs. Is it time to bury the hatchet and look at accountants as fellow travelers on this journey of discovery at the dawn of a new century? Do we need to help each other redefine our professions? **56208**

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READERS' LETTERS

AMD Has a Right to Battle Intel in Court

WE'LL ALL HAVE TO WAIT for the truth of the allegations involving Intel and AMD to come out in the courts. In the meantime, it's interesting fodder for the technology press, including Don Tennant, to speculate and pontificate about ["AMD: All My Disgust," QuickLink 55310]. Perhaps it's my turn.

I'm appalled that Tennant claims that "the only way Intel can be successful in its alleged attempts to bully vendors" is for computer buyers to perceive that AMD has inferior products and that this has happened because AMD's marketing is incompetent. In so doing, he suggests that competent marketing can triumph over (for now alleged) egregious and illegal marketplace manipulation every time.

This is like saying the good guys always win, even or especially when they have their hands tied behind their backs.

The marketplace is a battlefield every day for every business. Many times, that battle, of necessity, moves to the courts.

My sense is that AMD finally has achieved a critical mass of credibility in the market and that its slowly increasing market share in the business arena gives it the courage and resources to adequately pursue what it believes is an appropriate remedy at law. Perchance the timing is also driven by what AMD believes will finally be a preponderance of evidence that will support its claims.

Consider the likelihood that the mass market is controlled more by mass builders than consuming masses clamoring for the cheapest or the best technology. As such, AMD's credibility and current market share have been driven by the few rather than the many.

Educating the public is difficult, because people rarely believe that they need educating until something in their lives cave in. (Don't get me started on health care.) For most people, what CPU controls their computer doesn't fall into that category. The consuming public will drink what's offered.

Glenn Dunham
Conway, Ark.

Don't Knock 'Lone Wolves'

THE ARTICLE "Reinforcing Reuse" [QuickLink 54382] had me up until the last point, "Show 'lone wolves' the door." It has been my experience that a good portion of code that actually gets reused (and/or used as a template for other solutions) was developed in a skunk works kind of environment.

In all but the largest organizations, often this is a skunk works of one, with reusability/modifiability being the conscious design decision of the code architect.

If you need a real-world example to visualize what I am trying to articulate, consider that many of the (very highly reused) utilities in Unix were the vision and product of a single individual.

By all means, hook people into a network of shared ideas for reusability, but don't penalize or demonize the minority who often are the architects and implementors of the most reusable code.

Dan Goodman
Systems engineer specialist, Philadelphia

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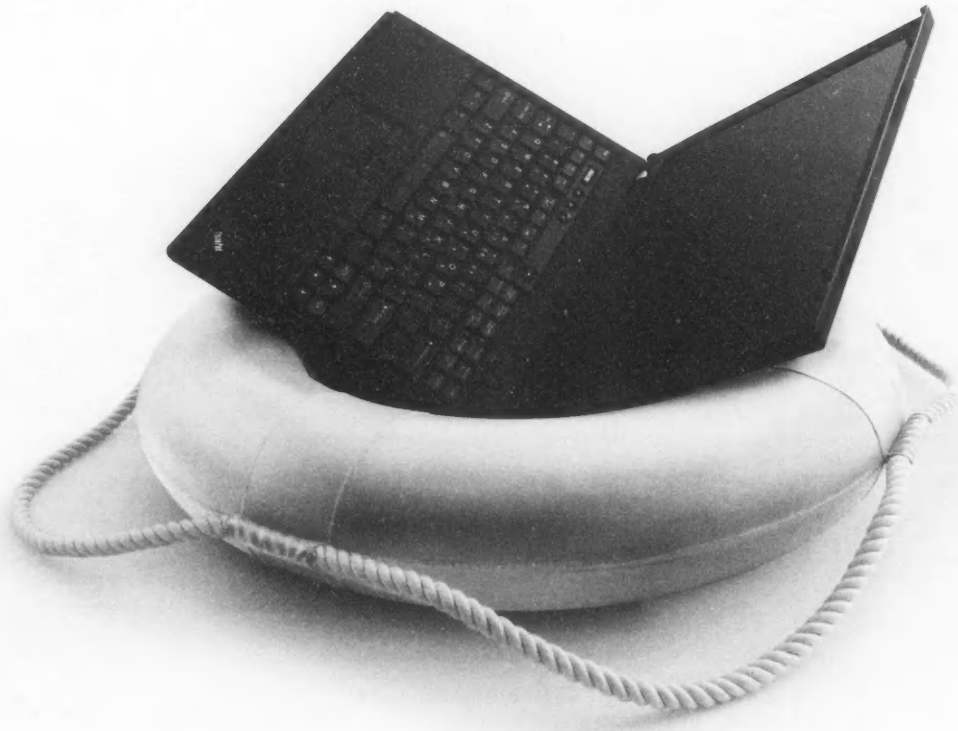

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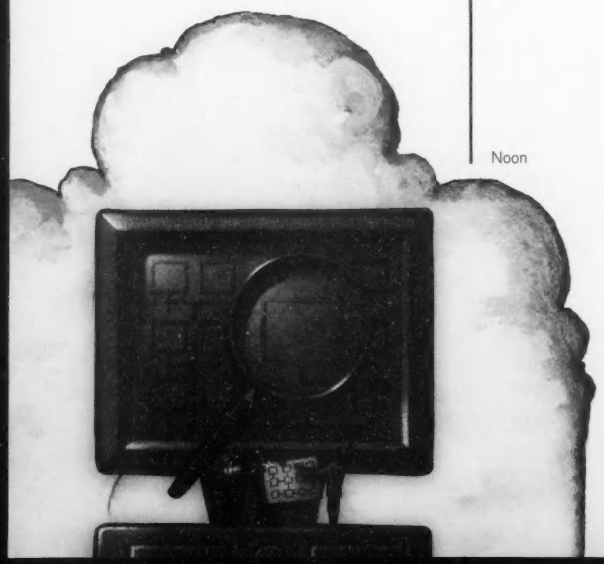

Beyond Business Intelligence: Using Enterprise Analytics to Drive Fact-Based Decisions

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8:00am to 8:30am	Registration and Networking Breakfast
8:30am to 8:40am	**Introduction and Overview** Julia King, Executive Editor, Events, and National Correspondent, Computerworld
8:40am to 9:10am	**Trends in Enterprise Analytics: An Industry Analyst's Overview** Keith Gile, Principal Analyst, Forrester Research
9:10am to 10:00am	**Transforming Enterprise Data Into Actionable Business Intelligence** Keith Collins, SVP and Chief Technology Officer, SAS Michael Tillema, Business Intelligence Strategist, Intel
10:00am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Case Study: APEX Management Group** Jody Porrazzo, Ph.D., Director of Econometric Risk Strategy, APEX Management Group
10:45am to 11:15am	**Case Study: McKesson** Stephen Zander, Vice President, Enterprise Business Intelligence Service, McKesson
11:15am to Noon	**Panel Discussion – From Gut Feel to Fact-Based Decisions: Real-Life Business, Political and Technology Lessons Learned on the Front Lines of Enterprise Analytics** Moderator: Julia King, Executive Editor, Events, and National Correspondent, Computerworld Panelists: · Jody Porrazzo, Ph.D., Director of Econometric Risk Strategy, APEX Management Group · Stephen Zander, Vice President, Enterprise Business Intelligence Service, McKesson · Keith Gile, Principal Analyst, Forrester Research · Keith Collins, SVP and Chief Technology Officer, SAS · Michael Tillema, Business Intelligence Strategist, Intel
Noon	Luncheon (optional)

Selected speakers include:

Jody Porrazzo, Ph.D.
Director of Econometric Risk Strategy, Niis/APEX Group Holdings

Keith Gile
Principal Analyst, Forrester Research

Keith Collins
SVP and Chief Technology Officer, SAS

Michael Tillema
Business Intelligence Strategist, Intel

Julia King
Executive Editor, Events, and National Correspondent Computerworld

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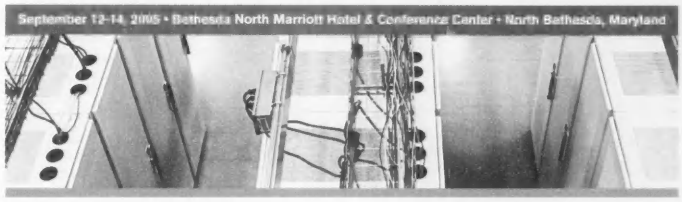

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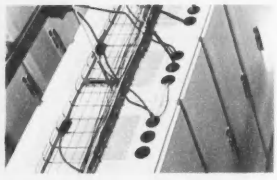

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MONDAY, SEPTEMBER 12 — Registration Open 8:00am - 8:00pm

10:00am - 11:00am	**Best Practices in the Acquisition Process: The Managed Acquisition Process** David Whitinger, Director of Consulting, International Computer Negotiations, Inc.
11:00am – Noon	**The Future of IT: How Significant Technology Tremors Will Create Strategic Market Opportunity** Frank Baitman, Director, Institute of the Future
Noon – 1:00pm	**"Birds of a Feather" Lunch**
1:00pm – 5:30pm	**Concurrent Tracks; Voice of the User, DMTF Technical Tutorial and Deployable Solutions Tracks**
7:00pm – 9:00pm	**Welcome Reception**

TUESDAY, SEPTEMBER 13 — Registration Open 7:00am - 7:00pm

7:00am - 8:00am	Breakfast
8:00am - 8:15am	**Opening Remarks**
8:15am - 9:00am	**Dynamic IT/Dynamic Enterprise: What the Next Generation IT Looks Like and How Customers are Attacking the Migration** Frank Gens, Senior Vice President, Research, IDC

continued

TUESDAY, SEPTEMBER 13 *(continued)*

9:00am - 9:30am		**Industry Leader Presentation: Distributed Infrastructure Management, Intelligence and Standards Propel Higher Levels of Efficiencies** Chris Gahagan, Senior Vice President, Storage Management Software, EMC
9:30am -10:00am		**End-User Case Study** Michael Crisafulli, Vice President, Core Services, AOL Systems Operations
10:00am - 10:15am	Break	
10:15am - 10:45am		**The Data Center Decision - Build, Buy, or Co-locate?** Bob Carroll, CIO, University of Phoenix/Apollo Group, Inc.
10:45am - 11:15am		**The Data Center Utility: The Next Generation of Computing** Rob McCormick, Chairman and CEO, SAVVIS
11:15am - Noon		**End-User Panel Discussion: Reducing IT Complexity** Moderated by Julia King, National Correspondent and Executive Editor, Events, Computerworld Panelists: Cindy Hughes, CIO and IT Director, Maryland Automobile Insurance Fund; John Bryer, Vice President, Information Technology, GMH Communities Trust; Jaime Sguerra, Second Vice President, Chief Architect & Senior Business Systems Officer, Corporate Marketing, Guardian Life; Josh Freeman, Director of IT, The New York Botanical Garden
Noon - 1:30pm	**Networking Luncheon**	
1:30pm - 2:00pm		**Ameritrade's Story: Running Your Data Center More Efficiently** Jerry Bartlett, Vice President, Application Development, Ameritrade
2:00pm - 2:30pm	**Industry Leader Presentation**	
2:30pm - 3:00pm		**Enterprise Management - A Global Approach** Jim Hull, Vice President, Engineering Services, Mastercard International
3:00pm - 3:30pm	**Industry Leader Presentation**	
3:30pm - 3:45pm	Break	
3:35pm - 5:30pm	**Concurrent Tracks; Voice of the User, DMTF Technical Tutorial and Deployable Solutions Tracks**	
5:35pm - 8:30pm	**Expo and Technology Showcase with Dinner**	

WEDNESDAY, SEPTEMBER 14 Registration Open 7:00am - 7:00pm

7:00am - 8:00am	Breakfast	
8:00am - 8:15am	**Opening Remarks**	
8:15am - 9:00am		**Opening Address: Web Services Oriented Architecture – Delivering on the Organization's Mission at NASA** Nitin Naik, Associate Chief Technology Officer, NASA (National Aeronautics and Space Administration)
9:00am - 9:30am	**Industry Leader Presentation**	
9:30am - 10:00am		**An Enterprise Architecture for Competitive Advantage** Jaime Sguerra, Second Vice President, Chief Architect & Senior Business Systems Officer, Corporate Marketing, Guardian Life
10:00am - 10:15am	Break	
10:15am - 10:45am	**Industry Leader Presentation**	
10:45am - 11:15am		**Efficiency in Operations: A Maryland Automobile Insurance Fund Case Study** Cindy Hughes, CIO and IT Director, Maryland Automobile Insurance Fund
11:15am - Noon	**Data Center Tour**	
Noon - 1:30pm	**Expo & Technology Showcase with Lunch**	
1:30pm – 3:15pm	**IDC Analyst Briefing and DMTF Technical Tutorial Track**	
3:15pm – 3:30pm	Break	
3:30pm – 5:20pm	**Concurrent Tracks; Voice of the User, DMTF Technical Tutorial and Deployable Solutions Tracks**	
5:30pm – 6:30pm	**Expo and Technology Showcase**	
7:00pm – 9:00pm	**Gala Evening with "Best Practices" Awards Ceremony, Dinner and Entertainment**	
5:35pm - 8:30pm	**Expo and Technology Showcase with Dinner**	

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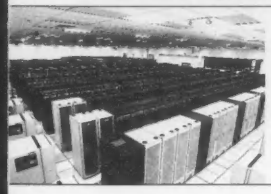

FUTURE WATCH
Power Play
Researchers are investigating new ways to reduce CPU heat loads and energy demands without compromising processor power for computers like Los Alamos National Laboratory's ASC Q. **Page 30**

SECURITY MANAGER'S JOURNAL
Intellectual Property Is Focus at New Job
Mathias Thurman's new challenge: keeping technical manuals, engineering documents and source code out of the hands of departing employees. **Page 32**

OPINION
Awaiting the PC Killers
Virus writers could do serious damage to computers by attacking the microcode embedded in hard disk drives, CPUs and other components. But two obstacles stand in their way, writes Robert L. Mitchell. **Page 33**

Smart Talk

Use of a virtual agent in TV Guide's call center has cut the average length of a customer service call in half and improved customer service, says STEVE MARTIN.

SCOTT NIBAUER

Companies are using speech-enabled applications to cut average call times, decrease staff requirements and enable new features. **By Robert L. Mitchell**

WHEN *TV Guide* subscribers want to notify the magazine about a change of address, they simply call customer service. But the friendly voice on the other end of the line isn't a human call center representative. It's a virtual agent — a speech-enabled application that can understand and respond to requests from the customer.

If *TV Guide*'s 40 million customers have any qualms about speaking with a machine, they aren't complaining. One reason may be that using the system is easier and faster than talking to a live representative, says Steve Martin, executive director of fulfillment operations at the New York-based publication. The system, purchased from Tuvox Inc. in Cupertino, Calif., halved average call times, from four minutes to two. That improved customer service while also reducing telecommunications and staffing costs, Martin says.

Long considered overly expensive and complicated, speech-enabled applications are finally beginning to deliver bottom-line benefits, says Daniel Hong, an analyst at Datamonitor PLC in New York. Today, the systems can eliminate the old, stilted voice recordings used in interactive voice response (IVR) systems and add a more friendly voice-user inter-

face (VUI) that understands natural, conversational language. The VUI accepts verbal input rather than requiring the caller to enter information from a touch-tone keypad.

State-of-the-art speech-enabled systems can cut through complex and confusing touch-tone menu hierarchies used in traditional dual-tone multifrequency (DTMF) systems by allowing users to say exactly what they want and then jump directly to that function. Speech-enabled systems are faster than touch-tone IVR systems for more advanced transactions and are more efficient at tasks like accepting alphanumeric serial numbers.

Competition in the speech-enabled applications market has increased, and prices have dropped by 30% over the past five years, according to Datamonitor. The emergence of open platforms built around standards such as VoiceXML and Speech Application Language Tags (SALT) has fostered the competition, spurring new entrants such as Microsoft Corp.'s Speech Server, which debuted last year.

The proprietary IVR system hardware and software in common use today are gradually being replaced with industry-standard servers with plug-in telephony cards. Vendors of speech-enabled IVR applications typically work with multiple speech engines, which provide basic speech-recognition, authentication and text-to-speech technology. Most offer prebuilt components that can be assembled into custom and packaged vertical-market applications.

The trend toward the use of prebuilt modules and reusable components has made the construction of speech-enabled applications easier. "Right now, we're on the brink of going from the early adopter to the pragmatist phase," says Hong. Although only about 7% to 10% of currently installed IVR systems will be speech-enabled this year, one in three new systems ship with the capability, and 50% will by 2009, according to Hong.

The real potential of speech technology lies in new applications rather than in the replacement of functions handled by touch-tone systems, says Steve Coplan, an analyst at The 451 Group in New York.

Building on its initial success, *TV Guide* is adding caller self-service features. "We've expanded it to do surveys and to handle our in-house employee directory," Martin says. And the system will soon handle online subscription payments as well.

Gtech Holdings Corp. in West Greenwich, R.I., has begun using the technology to automate field-service calls for retail machines it maintains for government lotteries. "It's cumbersome to collect [alphanumeric] serial number information via a DTMF application" that takes 3 million calls annually, says Mike Sax, director of global technology services. A voice-enabled system changed that. "We saw a 15% increase in acceptance almost out of the gate," Sax says, adding that he expects the system to pay for itself in 18 months.

Despite the advantages, speech-enabled applications still require specialists to perfect the VUI, customize "grammars" that the speech engine recognizes and tune the systems to improve accuracy.

"They're cheaper to implement relative to where the technology was but still require a lot of tuning and manual overhead to get the applications up and running," says Coplan.

Users shouldn't expect the systems to be perfect right away, adds Martin. "When we first started, we were getting about 40% success rate," he says. With tuning, that rate has climbed to more than 70%, and Martin expects the system to top out above 80%, which he says is acceptable. Dialogues are carefully constructed so when the system fails to interpret a request, the caller may transfer to a live operator or use touch-tone keys to complete a transaction. Failures are tracked by the system, which is periodically tuned to improve accuracy.

That process can't be rushed, says Casey Lewis, a software development manager at DST Systems Inc. in Kansas City, Mo. DST provides customer service outsourcing for mutual fund companies and their more than 90 million shareholders. The company uses a natural-language system from Edify Corp. in Santa Clara, Calif., that allows callers to perform activities such as checking their balances and redeeming shares.

While DST's staff handled much of the programming and construction of the system, a lot of the nine-month deployment effort was spent on multiple iterations of tuning — an area where the staff had little experience. "Don't hesitate to rely on vendors who can provide expertise," Lewis advises.

Finding Your Voice

Just as tuning is important, developing a user-friendly VUI is also critical. At American Savings Bank (ASB) in Honolulu, success meant tuning the system to understand local dialects as well as creating a friendly virtual agent that would become part of the bank's brand image. The institution, which takes more than 300,000 calls per month, already had a touch-tone IVR system. "Our local competition doesn't have speech, so it was an opportunity to be first," says Renee Lum, assistant vice president and manager of the bank's customer service center.

Lum brought in Dallas-based InterVoice Inc. to help develop its virtual agent and tune the system. "The personality for the voice was very important. We got down to her age, her hobbies and how many kids she had," says Lum. ASB then hired professional talent to record the voice and worked with InterVoice to develop the dialogues. "There were a lot of tuning cycles," Lum says. The system needed to recognize local words such as *aloha*, as well as local pronunciations for words like *four*, which sounds more like "foa." Testing with real users helped to refine the pace and pitch of interactions. The feedback also helped ASB refine dialogues by replacing confusing words like *debit* with the more straightforward *withdrawal*, for example.

"We did the tuning and testing, and it was one of the biggest success factors," Lum says. The system runs in parallel with the existing touch-tone system. Unfortunately, 94% of callers still press 9 to go to the touch-tone system as soon as they call in, bypassing the voice interface. Those customers have memorized the touch-tone options and in some cases may not even realize that a new option exists, Lum says. "We haven't been able to market it yet as we'd like to," she says.

For its part, DST addressed that challenge through careful scripting of the initial call dialogues, according to Lewis. By making some adjustments, DST was able to retain 80% of callers within the speech-enabled system. "The way you build that [script] has a lot of impact on what your speech-recognition retention rate will be. We discourage scripting that lets people press [the star key] and go right to the touch-tone system," Lewis says.

Although the technology has improved, the underlying complexity of speech application development remains a challenge, says Coplan. "There's no real abstraction layer to separate out the complexities of the speech-recognition engine," he says, and that makes the development process more complicated than it should be. Ultimately, the key to success may be the continued development of middleware from vendors such as Microsoft and IBM. But so far, the vendors have had little success, Coplan says.

Datamonitor's Hong agrees that the technology is still evolving but says that the development of prebuilt modules means that users can build a speech-enabled application without doing the kind of low-level programming that used to bog down such projects. A speech-enabled IVR can pay for itself in 12 to 24 months through cost savings alone and may also offer a competitive advantage, Hong says. "It improves customer service while reducing costs for the company," he says. "You should be looking at speech right now, doing pilots in a small footprint." **56026**

VOICE-ENABLED APPS

PROS

- **Easier for callers.** Support for natural language allows customers to say what they want instead of navigating through a hierarchy of touch-tone menu options.
- **Improved standards.** The evolution of standards such as VoiceXML and SALT have increased competition and helped push down prices.
- **Easier to build.** Prebuilt, reusable components facilitate application development and deployment.

CONS

- **Some assembly required.** While packaged applications for a few vertical markets are available, most deployments require custom development as well.
- **Deployments take time.** It can take a year or more to develop and fine-tune a sophisticated voice-enabled application.
- **You'll need help.** Professional services can add up to more than half of the project cost, analysts say.

MORE ONLINE

Speaking in Standards: A look at standards that are paving the way for open product architectures: **QuickLink 56035**

Gracious Host: Using a hosted service can help alleviate the upfront costs of developing and maintaining voice-enabled call center apps: **QuickLink 56033**

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Water Returns to the Data Center

As server heat loads grow, vendors are reintroducing water cooling options — and stoking old fears.

By Patrick Thibodeau

IN SOME DATA CENTERS, you can still find water pipes under raised floors that were once used to cool mainframes. And the idea of turning that water on again to cool off hot electronics is something that chills longtime IT professionals like Chad Gerbick, manager of operations at Kent State University in Ohio.

"I remember the water-cooled mainframes, and it was just such a hassle with that stuff because you always had to worry about water under the floor and pipes and the quality of the water," says Gerbick. "[Water cooling] is another point of failure that I wouldn't want to deal with."

Gerbick's reaction to the idea of bringing water close to very expensive electronics is widely shared among IT managers. But as server performance and density rise, water cooling may gradually move back into the mainstream of data center technologies.

Water cooling "is very definitely a viable technology and a necessary technology," says Bob Sullivan, a consultant at The Uptime Institute in Santa Fe, N.M. "Heat loads are going up so drastically that there is going to be no other way to cool these high heat densities other than water cooling."

Sullivan is hardly alone in this belief. Ken Baker, a data center infrastructure technologist at Hewlett-Packard Co., says that water cooling is "inevitable."

"The unrelenting power increase . . . is forcing [users] to look at new ways to cool the hardware," says Baker. "Real-estate constraints will drive this."

Recognizing Limitations

The upper limit of air cooling alone in a single cabinet is about 10 kilowatts, says Baker. But power demands will continue to rise. For instance, Baker estimates that a 1U (1.75 in. high) server that draws 350 watts today will increase to more than 600 watts over the next few years. At today's levels, 10kw would equal about 30 servers.

Large rack systems with 98 blades in seven chassis can consume as much as 24kw of power. Data center managers typically fill just half the rack space to keep temperatures down, but that means spreading out the servers, which uses more floor space.

"The water scares the heck out of folks," says Thomas Roberts, director of data center operations at Novi, Mich.-based Trinity Health, which operates hospitals and outpatient facilities. His data center, which was built two and a half years ago, has 100% more cooling than it needs. "I view [water cooling systems] as being needed in an environment where you have no scalability," he says.

That's what vendors believe as well. They think early adopters of water cooling systems will be those with facilities in urban areas, such as Globix Corp.'s data center in London's business district.

In March, Globix, which provides networking and infrastructure services to businesses, installed a cooling system for its high-density racks. The InfraStruXure High Density system from American Power Conversion Corp. (APC) in West Kingston, R.I., is a self-contained data center with air and water cooling systems for Globix servers that consume 15kw in a rack containing some 80 blades.

"We found we did not want to be an [Internet service provider] that kept throwing space at the problem," says Philip Cheek, U.K. managing director at New York-based Globix.

The APC system uses water to help cool the system and can handle up to 20kw, says Dave Brooks, facilities manager at the Globix London center. He expects to reach that level someday. The water connections are welded, and the system poses "no more risk than a standard unit," he says.

Vendors are beginning to turn out products that use water, but approaches vary widely. Last month, IBM released a water-cooled door capable of handling 15kw of heat that can be fitted on its enterprise server rack.

APC also has a unit that can handle about 18kw of heat and is fully enclosed — almost like a refrigerator. The APC unit can be operated outside a data center.

Not all liquid cooling systems use water. Liebert Corp. in Columbus, Ohio, is using a refrigerant in some of its cooling products.

New Designs

One sign that the idea of water cooling is regaining credence is that newer data centers are being designed to potentially handle water. Some are moving wiring to the ceiling and walls and are limiting or eliminating raised floors.

While water cooling units are beginning to appear on trade show floors, Ron Miglini, president of the Dallas/Fort Worth chapter of AFCOM, says the issue of water cooling rarely comes up at meetings of his group, an association for data center professionals. But Miglini, who is also president of Sealco Inc., a company in Richardson, Texas, that cleans data centers and improves air flows, says newer data centers are being built with utility trenches that can isolate water supplies from electrical wiring.

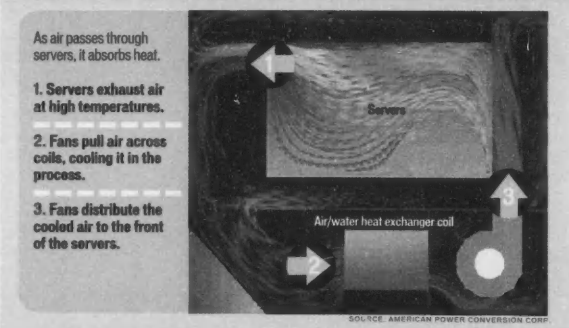
Data center cooling is a top issue for data managers, who are largely addressing cooling needs by carefully laying out data centers. But as server densities increase and equipment is added, users will have to either expand the size of their data centers for new generations of servers that have improved price/performance but consume more power, or they'll have to look at cooling system that use fluids.

Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H., says IBM's recent entry into the water cooling systems market will add a lot of credibility to the idea of using fluids to pull heat out of the data center. He believes, however, that adoption of water-based systems will remain small and in the category of specialty devices.

Charles King, an analyst at Pund-IT Research in Hayward, Calif., says companies "tend not to want to update their data centers every few years." He views water-cooled systems, such as IBM's, as stopgap measures.

IBM's new rack-cooling device is allowing data center managers to "buy some time and get a few more generations out of their facilities before they think about having to rebuild or retrofit," says King. 56076

Top-Down View of APC's Water-based Cooling System



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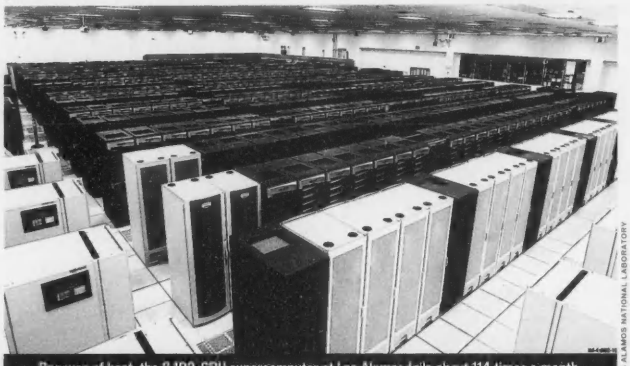
Power Play

Coming just in time: power-miser processors. By Gary H. Anthes



Because of heat, the 8,192-CPU supercomputer at Los Alamos fails about 114 times a month.

LOS ALAMOS NATIONAL LABORATORY

DISCUSSIONS of computer performance are typically dominated by references to measures such as MIPS, MHz and MFLOPS.

But Wu-Chun Feng, a computer architect at Los Alamos National Laboratory in New Mexico, expects that to change during this decade. He says it's time for the computer community to adopt alternate metrics for evaluating performance. "It's about more than speed; it's about reliability, availability and efficiency," he says.

It's more than an esoteric semantic point. ASC Q, a giant supercomputer at Los Alamos, has 8,192 processors, and although each one is extremely reliable (as well as fast), there are so many of them that the machine overall fails about 114 times a month, or once per eight-hour shift.

The problem is heat, Feng says, and it's not just an issue in supercomputers. The power consumed and the heat given off per unit area in processor chips increases with Moore's Law, doubling every 18 to 24 months. Indeed, the power density of commodity processor chips used in PCs today is on a par with that inside a nuclear reactor. And the failure rate of a processor doubles with every increase in temperature of 10 degrees Celsius (18 degrees Fahrenheit), Feng says.

Running Cooler

But researchers are inventing clever ways to keep reliability up by keeping heat and power consumption down.

In 2002, Los Alamos built a 240-node computer called Green Destiny. For two years, it ran without a single failure in a dusty, unventilated warehouse where the average temperature was 85 F. The magic: It used processors from Transmeta Corp. that consumed just 6 watts each. In comparison, mainstream microprocessors at the time consumed about 100 watts.

Green Destiny's low-power, low-heat, high-reliability characteristics came from its architecture, independent of the applications running on it. But now Feng and his colleagues are developing software that can alter the processor's power consumption depending on the moment-to-moment needs of the application.

The power drawn by a processor is proportional to its frequency and voltage. Notebook computers today can scale back frequency and voltage after some period of user inactivity in order to conserve battery power. But that's not feasible in a number-crunching scientific computer or a big transaction-processing server. "The CPU almost always looks busy compared to doing a Microsoft Office document," Feng explains.

FUTURE WATCH

So the lab has developed and is now enhancing "dynamic scaling" software that learns the characteristics of the application as it runs. It's able to anticipate when the workload will shift significantly from CPU-intensive operations to various off-chip functions that don't require high CPU clock speed and voltage and then temporarily scale them back. This technique has yielded a reduction in power consumption of as much as 70%, but performance has degraded only 1% to 5% for uniprocessor applications, Feng says.

Power savings from this technique average about 25%, he says. "If you save 25% on power, that's 25% more processors I can add to my system and still be in the same thermal envelope."

Rather than do this scaling in runtime software, the same thing might be accomplished by having programmers instrument their code so that power reductions are called for at the point where significant off-chip functions begin. But that puts too much of a burden on programmers, who are already struggling to write code for parallel operations, Feng says. Another idea is to have the compiler do it, but the compiler can't know what data the program will encounter, and much of the needed voltage and frequency scaling is data-dependent, he adds.

Feng says the concept could be applied to transaction processing, Web services or database servers, in which there is a great deal of I/O that doesn't require full CPU power. He says that for companies that have many thousands of processors, such as Google Inc., the driving technical objective isn't to have the fastest processors but to have high reliability in a small footprint. "For Google, space is money, power is money," he says.

Los Alamos has limited its research so far to dynamic scaling of processor metrics, but the concepts could be applied to other parts of systems, Feng says, even to mechanical components. "If you could profile disks so that you know when to spin things up and down, you could save quite a bit of energy," he says. And one might do voltage and frequency scaling on the processors embedded in network cards and video graphics cards, he adds.

More Buttons

Indeed, researchers are beginning to apply similar monitoring techniques to all aspects of power and to all parts of the chip, says Babak Falsafi, associate professor of electrical and computer engineering at Carnegie Mellon University in Pittsburgh.

"On the processor chip, and even on the DRAM memory, you are going to see fine-grained resource scaling, such as voltage and frequency scaling," Falsafi predicts. "It's across the entire chip now, but you'll have tighter control over the various resources so you'll be able to do scaling within the chip itself, which will give you a lot more buttons to push and a lot more flexibility."

For example, Falsafi and his students developed cache memory architectures that monitor program behavior at runtime and "autoconfigure" to adapt to the required cache size and organization. Unused cache sections are placed in a sleep state so they draw no current. Future designs will incorporate such resource scaling across all chip structures to save power, he says.

Will all computers, from notebooks to supercomputers, employ these techniques someday? "They'll have to," Falsafi says. "Going into 2015, we'll have hundreds of billions of transistors on a chip. We don't have the power budget for that." **55890**

Geek's Garden

A STROLL THROUGH THE TECHNOLOGY LANDSCAPE

Robotic Camels Are Next

This camel race in Qatar features robotic jockeys. The 15-kilogram high-tech riders replace the small boys who have traditionally sailed the ships of the desert toward the finish line in countries throughout the Middle East. New laws in several countries protect the boys, some as young as four years old, from essentially being conscripted as camel jockeys. The robot riders are remote-controlled but are programmed to automatically shift their weight and apply the whip in response to the performance of their camels.

Spam Delivers For Snake-Oil, Stock Scams

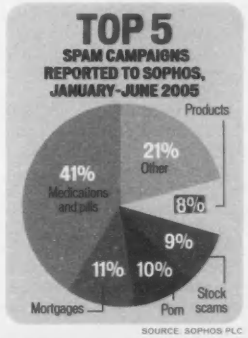
■ **E-MAILS** peddling questionable medications and low-interest loans continue to irk computer users and clog corporate networks as the most common types of spam, according to security vendor Sophos PLC. But a relatively new category of junk e-mail – stock scams – is becoming increasingly prevalent.

Researchers from SophosLabs analyzed the spam received in its global network of spam traps during the first six months of the year. They found that the number of "pump and dump" stock scams had increased by an average of 10% per month over the first half of the year, to the point where they now account for 8.5% of all spam.

Pump-and-dump campaigns tend to run for short durations, keeping overall volume low. Although some of the information provided is accurate, the deceptive and unsolicited nature of the messages qualifies them as spam. Unsolicited medication e-mails, including offers for generic or non-brand-name versions of Viagra and other pharmaceuticals, accounted for more than 40% of all spam traffic.

The good news is that pornographic spam is trending downward, though it still accounts for 10% of all junk e-mail, according to Sophos.

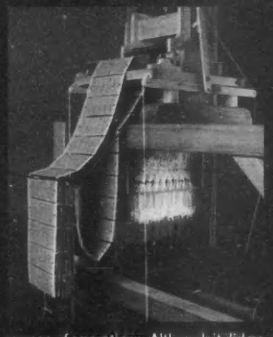
Page compiled by Tommy Peterson.



SOURCE: SOPHOS PLC

DIFFERENCE ENGINES

Weaving Preceded The Web



is a mechanical loom invented by French silk weaver and inventor Joseph Marie Jacquard in 1801. It used holes cut in pasteboard punch cards to control the weaving of patterns in fabric. The loom enabled even unskilled weavers to create complex designs. Each punch card corresponded to one row of the design, and the cards were strung together in order.

The Jacquard loom was the first machine to use punch cards to control a sequence of operations. Although it did no computation based on them, it's considered an important step in the history of computing hardware. The ability to change the pattern of the loom's weave by simply changing cards was an important conceptual precursor to the development of computer programming.

Specifically, Charles Babbage planned to use cards to store programs in his Analytical Engine. At first sight, this may seem unremarkable, but it was a clear turning point in the ability to store and reuse machine instructions.

Variations on Jacquard's punch cards found a variety of uses, including representing the music to be played by automated pianos popular in the 19th and early 20th centuries. Herman Hollerith used punch cards for tabulating the 1890 U.S. census. 56101

GROVES OF ACADEMIA

Chips With Nanotube Sprinkles From UPenn

■ **PHYSICISTS** at the University of Pennsylvania have developed a method to create functional electronic circuits by dipping semiconductor chips into liquid suspensions of carbon nanotubes rather than growing the nanotubes directly on the circuits.

Nanotubes, tiny tubes composed of carbon atoms, can be either semiconducting or metallic, the latter being highly conductive to electricity. Semiconducting nanotubes make exceptional transistors, which is why so much attention has been devoted to finding a way to use them in electronics.

Most nanotube circuits have been made by growing nanotubes on the surface of a chip. Unfortunately, this method results in a circuit comprising both types of nanotubes with large diameters. Small-diameter nanotubes are better for switches.

The UPenn researchers said they can create a large batch of small-diameter nanotubes in solution and separate out the semiconducting nanotubes. Then they can place them in the proper positions on a patterned silicon chip.

They deposit the nanotubes by dipping a chip covered with a gluelike substance into the nanotube solution, and then they wash off the excess glue and whatever solvents remain. "We dip the chips into nanotubes, much like dipping an ice cream cone in candy," said Danvers Johnston, a graduate student in associate professor A.T. Charlie Johnson's laboratory and lead author of the study. The resulting circuits take advantage of the unique electrical properties of nanotubes and can be produced in bulk.

ILLUSTRATION: MICHAEL R. [illegible], UPENN

Carbon nanotubes form an electronic circuit by interconnecting gold contact pads across a silicon surface.

"The only way to make faster processors is to cram more transistors together," says Johnson. "Nanotubes are about the smallest transistors that exist right now. So the more densely they can be packed on a chip, the faster the chips can become."

Intellectual Property Is Focus at New Job

Our security manager starts a new position with a mandate to keep company IP from walking out the door. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

I RECENTLY RESIGNED my position after four years to become security manager for a hardware maker. I typically change jobs every few years, for a couple of reasons. The first is to be exposed to different types of technologies, business models and cultures. To be effective in the information security field, it's important to broaden your horizons, much as consultants who work on short-term projects do.

The second reason is career enhancement and salary. We all have short- and long-term goals. Sometimes, in order to attain the next level in career progression, you have to take a new position in a new company. Of course, there's usually a change in title and an increase in compensation.

I started the new position about three weeks ago. Right now, I have a staff of two full-time security engineers serving a company of about 8,000 employees that has offices in North America, Europe, Asia and the Middle East.

The company had no security manager for almost a year, and with security absorbed by multiple departments, there's been no real direction. One of my short-term projects will be to develop a security road map and include enough projects to warrant an increase in staff. I hope to expand to six employees.

Win-Win-Lose

Shortly after being hired, I was presented with a high-priority problem that can't be solved quickly. My new company makes very delicate equipment that needs to be calibrated and maintained frequently. In order to deliver this level of support, the company publishes technical manuals that the service technicians use as they work on the various pieces of equipment the company produces. This service business represents a significant portion of the company's overall revenue.

The problem is that we're losing field service technicians and support customers. Some technicians have been quitting and then using the service manuals we produce so they can work as technical consultants for our customers at a discounted price. This is a win-win-lose situation, and it's my company that's the loser.

That's just the beginning of our problems with holding on to intellectual property (IP). CAD/CAM drawings, source code and other engineering documents are also at risk of falling into the wrong hands. To make matters worse, a substantial amount of our design and engineering work is done overseas for cost reasons, and we don't have as much control, jurisdiction or recourse in relation to what foreign employees do. Plus, the culture in some of these places encourages industrial espionage as a way to stimulate the local economy.

> **IP protection is generally approached using one of two major classes of products and technologies.**

We don't want to see a competitor come out with a product similar to ours, designed from our engineering documents. Making sure that this doesn't happen is a major strategic objective for the company, and I have been assigned to figure out how we're going to protect this intellectual property. So here I am, just a few weeks on the job, with all sorts of security issues to deal with, and I have to spend the majority of my time addressing IP protection.

Schools of Thought

IP protection is generally approached using one of two major classes of products and technologies, which represent two distinct schools of thought. The first involves monitoring activity. Software is installed on each employee's desktop so that we can monitor how individuals handle IP and can then take action such as blocking or reporting. We can also monitor the network traffic and look for key words or phrases indicative of our IP leaving the company.

The other school of thought is to employ digital rights management (DRM) and its cousin, enterprise rights management (ERM). DRM allows you to "wrap" a document. The document is encrypted, and the wrapper contains information on who can read the document and what rights each person has for controlling the document. If executed properly, DRM can effectively address concerns about documents leaving the company. If the recipient of a document isn't authorized to view it, then the document is useless to that individual. The trick is making sure that DRM is deployed properly; if it isn't, the protections it can afford are lost.

To address my company's IP protection needs, I may end up using both technologies.

I wanted to get a better understanding of the DRM technology, so I attended a recent conference in New York. As it turned out, it seemed as if about 70% of the attendees were in the entertainment industry, meaning that they were interested in what DRM technology can do protect IP in the form of digital music and video. This made me suspect that this technology is for the most part still in its infancy when it comes to ERM, and that suspicion was confirmed for me after I attended some of the sessions and spoke to the vendors.

No single company's product can address all of my needs. For the short term, I'm looking for a way to protect Adobe PDF files and Microsoft Office documents, which are used for the majority of our most valuable IP, such as those service manuals. But as I mentioned, we also need to protect CAD/CAM documents, source code and other types of IP.

The problem is that there aren't any products designed to protect everything. Some are good at protecting PDFs and Office documents but can do nothing to keep source code safe. Others do a good job of protecting CAD/CAM drawings but don't address Office documents.

Over the next couple of months, I will take a more detailed look at this technology, set up a proof-of-concept project and see which vendors and technologies best fit this very dynamic, out-of-control environment.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

Security Bookshelf

■ ***The Art of Intrusion: The Real Stories Behind the Exploits of Hackers, Intruders & Deceivers,*** **by Kevin D. Mitnick and William L. Simon (John Wiley & Sons, 2005). This book is both entertaining and educational. The notorious Mitnick and his co-author have compiled some very informative and realistic stories on a wide variety of information security topics. Because intellectual property is a priority for me, I enjoyed reading the chapter titled "Your Intellectual Property Isn't Safe." With tales of hacking casinos, phone phreaking within prison walls and more, this book provides insight into the mind of a hacker and the common (and not-so-common) approaches to gaining unauthorized access.**

– Mathias Thurman

Juniper Upgrades Firewall, VPN

Juniper Networks Inc. beefed up its security offerings with faster and more capable hardware modules for its high-end firewall and VPN systems. The company introduced the 8G2 and 2XGE Secure Port Modules for the Juniper Networks NetScreen-5000 Series Firewall and VPN systems. They are available now.

Symantec Patches Critical Veritas Bug

Symantec Corp. has released software that fixes critical vulnerabilities in the company's Veritas Backup Exec and Veritas NetBackup software. A flaw in the Network Data Management Protocol agent could let an attacker gain access to the system and download files, according to Symantec. Details on the vulnerability and links to the patches can be found at QuickLink a6880 at *www.computerworld.com.*

BRIEFS

Business Objects Supports Appliance

Business Objects SA and Datallegro Inc. announced enhanced interoperability between BusinessObjects XI business intelligence software and Datallegro's data warehouse appliance. The appliance will enable XI to support more users, offer faster warehouse-loading times and increase ad hoc query capabilities. Datallegro's appliances, which support up to 25TB of data, start at $450,000.

Centennial Unveils DeviceWall 3.0

Centennial Software Inc. has released DeviceWall 3.0, software that protects against data theft and unauthorized network access by mobile devices. DeviceWall can also secure Bluetooth, infrared and Wi-Fi connections. Pricing starts at $10 per seat.

Progress Product Embraces Eclipse

Progress Software Corp. announced that it has joined the Eclipse Foundation open-source community and introduced new Eclipse-based development tools. OpenEdge Architect, which is part of Progress OpenEdge 10.1, is an environment designed to support application development in a service-oriented architecture. The software, due to ship next month, includes improved language capabilities and component services for developing applications.

Tool for Wireless Support Debuts

Devicescape Software Inc. announced the Devicescape Wireless Operations Center. The software, available now, lets help desk personnel and others check wireless access points to isolate and resolve problems. Pricing starts at $100 per managed access point for up to 10 APs.

ROBERT L. MITCHELL

Awaiting the PC Killers

THE MALICIOUS CODE enters your network undetected, rapidly infecting more than 100 machines. But this is no ordinary virus. Your antivirus and disk recovery tools can't help, because the disk drives won't spin up at all. The drives are toast. The PCs are completely inoperable.

The era of microcode attacks has begun.

ROBERT L. MITCHELL is *Computerworld*'s senior features editor. Contact him at robert_mitchell@computerworld.com.

Could viruses really attack the low-level microcode that makes disk drives run? It's entirely possible, disk technology experts say. Dimitri Postrigan knows how such a virus might be created — but he's not telling. Postrigan reverse-engineers and programs hard disk drives at ActionFront Data Recovery Labs.

He says each disk drive has its own internal operating system that enables the device to start up. The operating system microcode resides in a special system area of the disk. "A virus could be written which would destroy the whole system area on a drive. This will make the drive and data almost unrecoverable," Postrigan says.

That nightmare scenario also bothers Ben Carmichael, technical director of ESS Data Recovery. "In the data recovery industry, we've been waiting around for this to happen. We've written programs to restore hard drives. We could easily write a program to destroy [them]," he says. He worries that others with fewer scruples could create a fast-spreading virus that causes massive destruction of data.

The idea of a microcode attack goes beyond hard drives, says Thor Larholm, senior security researcher at PivX Solutions. Microcode is found in other PC components, including graphics cards, the BIOS and the CPU. Both Intel and AMD offer microcode utilities, complete with source code that could be used to physically damage a CPU by severely overclocking it, Larholm says.

So, why haven't such exploits been more common? Fortunately, it's not that easy to do. Viruses thrive on homogeneity. While all PCs may look the same at the Windows level, at the machine level, things can be very different, making a broad attack more difficult to pull off.

Years ago, someone wrote a virus that attempted to overwrite the flash memory area of a PC's BIOS, but its success was limited because there are so many different BIOS implementations, says Sean Barry, remote data recovery manager at Ontrack Data Recovery.

Similarly, the way in which one accesses the service area of a hard disk varies by manufacturer. That means a virus would have to include code for each brand its creator wanted to target. The proprietary tools and codes required also aren't readily available to the layperson. Postrigan says he personally has tried to find such information on the Internet and through other channels, without success. He gained the knowledge through the time-consuming process of reverse-engineering the products.

But Carmichael says that knowledge is spreading. Old hard drives are routinely shipped to Russia, where the business of repairing old hard disk drives for resale is flourishing. He notes pointedly that many viruses today come from that region. How big a step would it be for that information to be shared?

Very big, says Bruce Schneier, chief technology officer at Counterpane Internet Security. Disk drive experts may reside in the same country as malicious hackers but that doesn't mean the two groups are any more likely to share information than they would in the U.S., he says.

In addition, professionals like Carmichael and Postrigan, who have the determination to develop such skills, tend to develop a sense of moral responsibility. "Society is saved by that a lot," Schneier says.

The public may also give virus writers too much credit. Most simply aren't that good. Existing viruses tend to be quite buggy, while efforts at more difficult, hardware-based attacks, such as attempts to overwrite disk controllers, have attained only mediocre results, Schneier says. Most writers look for the easiest route to destruction. Why do all that research when you can simply erase the data?

Schneier thinks that only one type of organization would be likely to apply the skills necessary to pull off such attacks. "You can imagine that the government has in its back pocket malicious code that does these sort of things for military use," he says.

Nonetheless, while an imminent attack by virus writers may be unlikely, Schneier acknowledges that ultimately, Carmichael may be right. "Sooner or later, someone is going to say, 'Let's really hurt people.' It's unfortunate," he says. That possibility — a remote one, I hope — is just one more reason to keep your antivirus software up to date. **56155**

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Managers' Forum
How does a busy IT leader learn to say no? Paul Glen has a suggestion that can't miss, along with other advice for IT managers and pushback from readers. **Page 37**

Career Watch
CIO Andrew Armishaw of HSBC offers IT career advice. Plus, a study provides insight into how confident IT workers are about holding on to their jobs, and a poll reveals that interest in computer science continues to wane among undergrads. **Page 40**

OPINION
CEOs: Think Through Your CIO Choice
Paul Ingevaldson says one type of CIO doesn't fit all companies. He offers CEOs some critical advice about how to choose the right one. **Page 41**

Truman Medical Center's DESTINY MONEYSMITH (right) overcame her initial hesitation and learned to lead with the help of Ouellette & Associates consultant Gwen Walsh.

SCOTT INDERMAUER

SHOW Me

This IT project manager was skeptical about taking on a personal coach. Six months later, she's a believer.

BY KATHLEEN MELYMUKA

THEY DON'T call Missouri the Show-Me State for nothing. People there aren't easily taken in by claims and promises; they want proof. So it isn't surprising that when IT project manager Destiny Moneysmith found out last fall that she was about to get a personal coach, she was less than enthusiastic. "I was very skeptical," she recalls. "My past experience with consultants on projects had been less than satisfactory."

Why was Moneysmith, who had worked in IT at Truman Medical Centers Inc. (TMC) in Kansas City for three years, getting a coach? CIO Bill McQuiston had selected her to lead a three-person team in an organization-wide information needs assessment.

"We would be asking executives, administrators, directors and managers throughout the business about information needs, ranging from data and systems needs to information to take care of patients, to information needed to run day-to-day operations — basically any information that flows," Moneysmith said, describing the start of the project.

But McQuiston noticed that the team had a hard time getting started.

"There was some intimidation about working with the highest people in the organization and some confidence issues about whether they could accomplish a project of that magnitude," he says.

McQuiston decided to engage a coach to walk Moneysmith and the team through the process. Enter consultant Gwen Walsh from Bedford, N.H.-based Ouellette & Associates Consulting Inc., a firm TMC had had good experiences with in workshops and related services. Here's how the coaching engagement played out:

OCTOBER 2004

McQuiston asks Moneysmith and Walsh to talk, and they have the first of several phone conversations about the project and what Walsh can bring to it.

Walsh immediately picks up on Moneysmith's hesitancy about being coached. "I'm getting that you're not trusting me," she tells the project manager, who confesses her lack of enthusiasm for the idea.

Walsh responds by talking about her experience with similar IT projects, and Moneysmith agrees to give it a try. They follow up with several calls and e-mails before the engagement begins.

In those early conversations, Moneysmith talks about what she wants: help with the project charter, strategies and work breakdown structure. "If we had extra time, I had other things we could work on," she recalls. "I wanted to make sure we got our money's worth."

SHOW Me

NOVEMBER 2004

Walsh begins providing TMC's team with the nuts-and-bolts skills required to manage the needs assessment. By late November, the team is documenting requirements, strategies and the project charter and plan. And Walsh is broadening her contribution. "We saw that she had all these other skills, so we tapped her for all the resources we could get," Moneysmith says.

Walsh begins working on each team member's personal development, offering tips and techniques to practice on one another.

"One of the things was body language," Moneysmith says. "When we sat in meetings, we tended to nod that we understood. But Gwen coached us that this is often perceived as 'I agree,' not just 'I understand and am listening.' She pointed out that we might have been sending mixed signals. So now when we have conversations among ourselves, we say, 'Hey, you're doing it again — are you understanding or agreeing?' "

DECEMBER 2004

Walsh works on getting the team members to be more assertive. "We realize we need to be more verbal in meetings," Moneysmith says. "My personal challenge is to 'blurt.' When things come up that bother me, I can't sit back and think about it while nodding my head. I need to bring it out on the table."

The team members begin to speak up at departmental meetings, and they see results almost immediately. "It's been very positive," Moneysmith says. "When we have something to say, we say it, and people are listening to us."

JANUARY 2005

As Walsh sees opportunities for development, she suggests tips and techniques, including the following:

- **Assertiveness:** Recraft e-mails to be more direct when communicating with the boss. Instead of saying, "Can we do this?" say, "This is what we want."
- **Empowerment:** Instead of asking for permission to proceed, feel confident enough to move forward with your ideas and then send your manager a note.
- **Communication:** Be firm and straightforward. Instead of sending wishy-washy messages that ask for help but give the recipient an easy out, say, "This is what I need by this date."
- **Difficult situations:** Present the facts, even if they are harsh, then work out a solution. Focus on the data, process and fix.

As the team becomes more comfortable with Walsh, they add their own items to the coaching agenda. "We've opened up and asked for assistance," Moneysmith says. "For example, in the hallway someone said, 'Hey what do you actually do in your job?' I took it as insulting, but Gwen said, 'This is an opportunity for you to market yourself.' "

Walsh then helps the group to fashion "marketing lines, tag lines and comeback lines" to use in various situations.

FEBRUARY 2005

Team members have gained enough confidence to try stepping out of their comfort zones. Previously, Moneysmith had run the meetings with business people, but now the others try that role. "It's safe because the other two are there to jump in and back you up if you need help," she explains. "You're not by yourself."

Walsh continues to help the team improve its project management skills and personal skills in tandem. For example, they begin work on a project prioritization matrix by asking the IT directors how the company and IT prioritize projects. They find that the process is neither formal nor documented.

The team members formalize the process the directors describe, adding weights and values to rate and score any project through hard data rather than gut feel. Then they practice their soft skills. "When we took it back to the directors, we had to present that tactfully so they would accept it," Moneysmith explains. "We didn't want them to feel we were telling them how to do their jobs."

Moneysmith is stepping into her leadership role. She realizes that she has taken the coaching agenda out of Walsh's hands. "In the early meetings, I'd be rushing around making sure I got my action items done," she recalls. "Now, I usually have an agenda."

"Blurting" has become so second nature that during departmental meetings, attendees turn to Moneysmith with an expectant "Aren't you going to say anything?"

"When she learned to blurt it out, it was like a light switch turned on, and she hasn't turned it off since," Walsh says.

MARCH 2005

The project is nearly done. Walsh coaches the team on how to analyze findings, document their analysis and get buy-in from the departments on their methodology. Once the analysis is complete, they practice presenting the information to better handle difficult questions from the audience.

In this final round, they are still simultaneously working on personal growth. Moneysmith's new focus is delegating project tasks.

"Gwen has helped me realize I can't do everything," she says. "She showed me how to stay connected but not do the work — how I can still check up on it, but I don't have to own it."

APRIL 2005

The team gives its final presentation. "It went great — very smooth, and nothing they threw at us caused us any concern," Moneysmith reports. A week later, after focusing on lessons learned, the group is ready for a new project.

CIO McQuiston says the engagement was a big success. "I see a physical difference [in Moneysmith]," he says. "I see a person who is more confident and more able to confront issues and ideas. She shows a lot more boldness, in a good way.

"[The team] served up an end product that was on time, well organized and very useful," McQuiston adds. "There's no question the project was a success. It will serve as a guidepost for us developing our capital expenditure plan and everything else."

Everyone was impressed with the team, he adds. "And when I started to get 'Can they work on my project?' I know there's something positive happening."

Moneysmith knows it, too. "When I started out, I was kind of scared of the project; I hadn't done something in this manner before. I questioned my ability and how everybody would react," she recalls. "Now I don't think I'm scared about tackling anything they throw our way." **56055**

Would This Work for You?

Smart managers don't assign coaches to losers; they assign them to winners with great potential for growth. How can you tell if you or one of your staff would do well with a personal coach? Here's what a good candidate for coaching looks like, according to Gwen Walsh, a coach at Ouellette & Associates Consulting.

- Thinks like a business leader
- Sees the big picture
- Acknowledges opportunities for self-improvement
- Exudes drive and commitment
- Focuses on the right goals
- Embraces change
- Commits to the work
- Encourages key colleague input
- Acts on advice
- Seeks clarification
- Practices continuously
- Reflects on good and bad outcomes
- Rebounds quickly
- Celebrates successes

The Tab

The cost of a coaching engagement is highly variable. "Typically, you outline a scope of work to be conducted over time," says Truman Medical Centers CIO Bill McQuiston. "Then you count on *x* days per month for preparation and on-site delivery. You estimate it based on what you're trying to accomplish, and you negotiate until you've got the scope, cost and time frame you're looking for."

For a good coach, you should expect to pay $250 to $350 an hour, or about $2,700 a day, he adds.

Was it worth it? "Absolutely," McQuiston says. "Worth every cent."

– Kathleen Melymuka

GET THE MOST FROM YOUR COACH

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QuickLink 56058
www.computerworld.com

MANAGERS' FORUM

WITH PAUL GLEN

ADVICE

I hope this monthly column will provide a lively exchange of ideas with IT managers. I'll do my best to answer your questions, and some of your responses will run alongside in "Readers Talk Back."

PLEASE SEND YOUR QUESTIONS, COMMENTS AND CRITIQUES TO ME AT PGLEN@C2-CONSULTING.COM

An industry group has asked me to do a speech. While flattering, it would be too much work, given the value to be gained by me or my organization. They are being very aggressive with their invitation, and I'm afraid that they may want to try to negotiate rather than take no for an answer. How do I say no politely without trashing the relationship? There are times when saying no is difficult without jeopardizing a professional relationship, especially when people are being very aggressive about their requests.

In your case, telling the truth, the whole truth and nothing but the truth would probably be too harsh. At the same time, I'm not a big fan of little white lies. It's best to stick to the facts.

However, when people don't want to take no for an answer, giving them too many facts is an invitation to a negotiation. They'll try to pin you down, proving that you can do it after all. Before you know it, you'll not only be speaking at their conference, you'll also be hosting a panel and writing articles for their newsletter.

The most effective approach is to stick to the facts about your own feelings. So I'd suggest a reply like this: "While I appreciate the invitation, I've already taken on a large number of commitments and don't feel comfortable taking on any more right now."

There won't be a discussion of how many commitments you have. It's about your feelings about those commitments. Who can argue with that?

When you have an outstanding employee and, because of the corporate rules, you can't reward him with promotions and/or nonstandard salary increases, what do you do? There are many ways of rewarding outstanding performance, but before addressing the possibilities, let's take a quick look at the options you mentioned, which are often overrated.

In organizations where nonstandard salary increases are possible, they can be a great tool. For someone who consistently performs beyond expectations, a salary boost can be a good way of recognizing the long-term value delivered. But too often, I see managers eager to hand out salary increases as rewards for one-time greatness. Salary increases are gifts that keep on giving — and taking away. The employee is paid every year for something done long ago. But raises can also foster expectations that every episode of greatness will be met with a permanent reward. Bonuses may be a better way to go. One-time value delivery is rewarded with one-time cash.

Also, be careful when handing out promotions. Just because people perform exceptionally in one position doesn't necessarily mean that they're ready for the next higher job. If a promotion transforms how someone delivers value to the organization, it should be bestowed on someone who's ready to accept the new responsibilities.

So how can you reward your star performers? Here are a few ideas:

- **Cool work.** Give the most interesting assignments to top performers who will love doing them. Include appropriate technical and managerial training.
- **Recognition.** A public thank you and recognition of outstanding work can go a long way, especially if you combine it with some other reward. Recognition alone can seem a bit hollow.
- **Status symbols.** While we don't like to talk about this one, it can be remarkably powerful. At heart, we are pack animals and have a strong desire to display our place in the pecking order. (Does a Mercedes get you to work any faster than a Chrysler?)

What you need to do is figure out the status symbols in your company. The classics include office location, size, furnishings and configuration (such as a door). At one consulting organization I worked for, none of us had offices, so we had to find another way of showing rank. Status was denoted by cell phone. (Clearly, this was a while ago.) If the company issued you a phone, you were important. Then, within the cell-phone-bearing crowd, status was shown through phone size. The smaller the phone, the more important you were.

Silly as it may seem, people paid attention to this. So don't underestimate the value of psychic rewards.

I am the interface between IT and one major user group. How do I protect my personal reputation with my users when my department is doing a poor job delivering? Very simply: Don't try. Most users can distinguish between poor collective performance and poor individual performance. Just as most Americans love their own congressional representatives yet despise the collective U.S. House of Representatives, your users can love you and hate your department.

In fact, the harder you try to separate yourself from your delivery people, the more shrill and mercenary you will look. The more you call attention to yourself, the more you demonstrate to your users that you are more worried about yourself and your image than you are about their problems.

Just be consistently professional, acknowledge service problems, apologize appropriately, and work to correct them. You'll be fine. **56051**

READERS TALK BACK

Rock-star-itis

I think your answer would apply as written to smaller shops, but in larger organizations, it might be a little bit oversimplified and thus misread and misleading.

In large organizations, it could be argued that "providing external representations" should be the primary focus of the CIO. Certainly the other of the four key responsibilities are in play, but typically they are routinely focused at, on and through second- and third-tier managers.

ONLINE For more responses on this topic: QuickLink 54660

The CIO, meanwhile, might have his hands pretty full representing the IT division and IT staff to the external world of the organization – even to the industry. This does not mean that he focuses on becoming a "rock star" for purposes of ego gratification. There's plenty of legitimate need for the external focus of a CIO that has nothing to do with ego – e.g., budget or planning sessions or making sure the IT staff gets the recognition it deserves for corporate accomplishments.

It's possible the writer's CIO was, in fact, overdoing the ego trip. However, your answer dealt more generally with what a CIO should be doing in balancing the four accountabilities.

I do not agree that the emphasis on each accountability is in complete balance at each level, which the answer implies.

– PAUL WILLIAMS, SACRAMENTO

Generally, I agree with your analysis. For a big-company CIO, the emphasis does shift more toward the external representation than it does for a smaller-company CIO. But even there, the external representation function should be geared mainly toward maintaining productive relationships within the broader organization and with vendors rather than with the press.

In the case listed, it sounded like the primary focus was on fair organizational publicity rather than on being an effective representative of the technical group.

– PAUL GLEN

Grating Expectations

No matter how good the outcome, if customers expected something different, the project is a failure.

By Alan S. Horowitz

THE IT PROJECT WAS A SUCCESS. It was on time and on budget, and it did what it was supposed to. The only problem: The customer wasn't happy.

The project manager had provided written weekly status reports, just as the customer had requested, but he had missed the crucial second step: asking for feedback. The project manager learned too late that you can never assume you know what a customer is thinking — you have to ask. Because he failed to do that, the customer was resentful, says Naomi Karten, a principal at Randolph, Mass.-based training and consulting firm Karten Associates. "The information [the customer] was given didn't mesh with what he was looking for, [but] he didn't take any steps to ask for what he really wanted," she observes.

Welcome to a world where even successful IT projects can be deemed failures if the customer expected something other than what IT delivered. To survive and prosper, you have to learn how to manage what customers expect.

First, it's important to understand how skewed expectations arise. "Unreasonable expectations almost always come from a misunderstanding," says Dan Bent, director of claims technology at The Nyhart Co., a financial services firm in Indianapolis.

The sources of these misunderstandings are varied. Some are based on incorrect assumptions. "The expectation is that IT is like the power company," says Garrett Granger, CIO of office supply manufacturer Dixon Ticonderoga Co. in Heathrow, Fla. "[Users] expect the lights to go on," he says, "and the only time you hear from them is when the lights don't go on."

History often raises false expectations, says Rick Giese, e-commerce development manager at Great Lakes Educational Loan Services Inc. in Madison, Wis. If a previous project didn't go well, the customer's expectations may be negative, he says, and no matter how well IT performs, it may not be able to overcome them.

A directive from the top can create expectations that IT will have trouble meeting, says Nate Root, an analyst at Forrester Research Inc. Consider the sales executive who decrees that his department needs a new system to track customers. Because the executive thinks he knows what's needed, he does no research, nor does he want IT to spend the time and money to develop good user requirements. IT is left having to fulfill expectations that have never really been vetted.

Sometimes customers aren't sure what they expect. Especially with a large project that takes time to complete, expectations may evolve. "The technology doesn't change as quickly as people's minds change," says Karten.

Unattainable expectations may arise from outside the company, says Anita Leto, director of IT transformation at consulting firm Ouellette & Associates Inc. in Bedford, N.H. The news media publish articles, vendors place ads, and trade shows provide rosy pictures, all of which can foster unrealistic expectations. Customers expect plug and play. "That's what the vendors at the conferences promise them," she says.

Finally, IT's own expectations may be as off-target as those of users. The IT group may think that if it tells customers about a new application, they'll be eager to use it. But unless it obviously makes their jobs easier, customers may ignore it. "The average IT end user and the average IT producer have different expectations," Root says.

But you can manage expectations. Here's how:

Communicate carefully. Karten notes that it's often not the work that IT does that riles customers; it's the customers' interaction with IT. So use unambiguous language. If the help desk commits to "respond" to a customer communication within four hours, the customer may think this means IT will solve the problem within four hours. But IT may think this means it will acknowledge a problem within four hours. "Both parties need the same understanding of what 'respond' means," Karten says.

Take the time to do it right. "The customer needs to be assisted in finding a reasonable set of expectations," says Douglas C. Gilbert, director of Verizon Communications Inc.'s operations for the U.S. Department of Energy. If IT doesn't take the time early on to help the customer understand what's reasonable and unreasonable, he says, don't be surprised when expectations turn out to be beyond IT's capabilities.

Don't be a patsy. Push back against unrealistic directives from on high, says Root. Don't start the project until you know exactly what users really need.

If you're fighting negative expectations, try to build trust, says Virginia Robbins, managing director of IT and operations at Chela Education Financing in San Francisco and a *Computerworld* columnist. That's done through working closely with business customers to set priorities, requirements and scope.

Keep expectations in sync by holding regular meetings in which senior IT and business executives hear project status reports from workers. "These appear to be time-consuming," says Ellen Gottesdiener, principal consultant at EBG Consulting in Carmel, Ind., "but they save time by dealing with things upfront."

Stay current, warns Giese. Hold meetings at least weekly, if not more frequently. "If you're a week off in expectations, it's easier to get things righted than if you're two months off and the client says, 'This isn't at all what I thought it would be,' " he says.

Use pilot programs as a reality check, Gilbert says. "The pilot is set up as a joint program between business and IT," he explains. A joint management committee sets scope, goals and metrics for the pilot, monitors it and verifies the results. "We use the pilot to collect data on which we can base realistic expectations," he says.

Don't sugarcoat it. "One area where IT doesn't do as good a job as it could is in communicating how long a project will take," says Giese. If the job can't be done within the time the customer wants, say so upfront.

If customers' expectations aren't realistic, communicate that to them, says Ann Smith, vice president of federal sales at Tumbleweed Communications Corp. in Redwood City, Calif. "It won't get better," she says, "so deal with it as soon as possible." **56059**

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@ahorowitz.com.

Don't Overdeliver

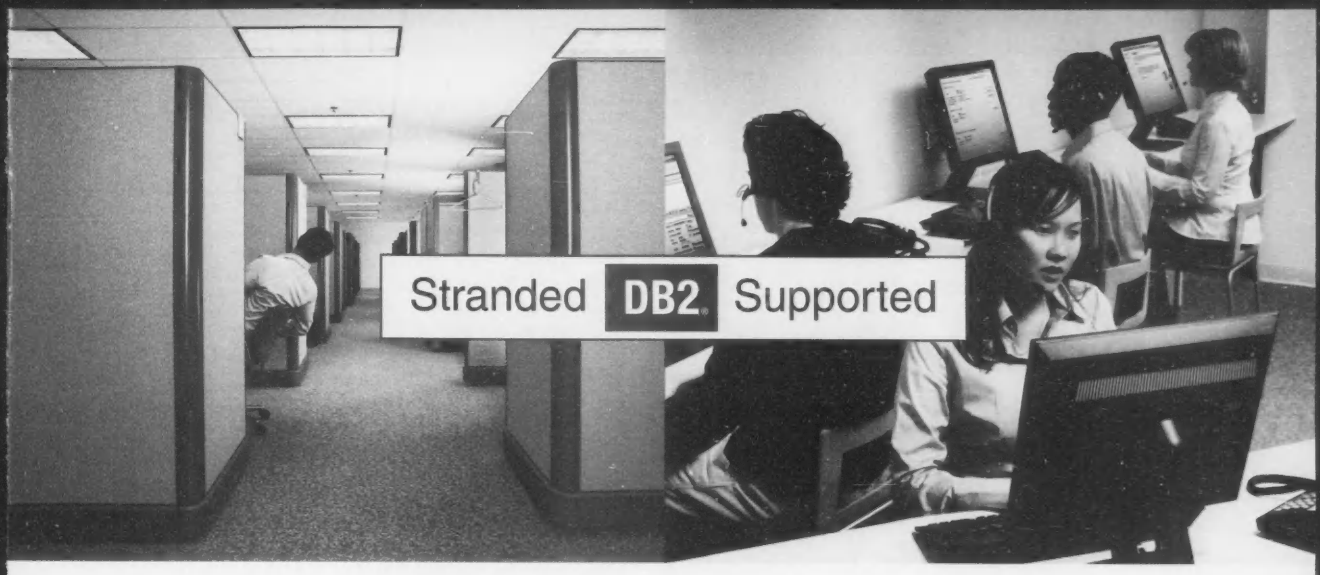
Developers like to add features to what they're developing. "Gold plating" is what Rick Giese calls it. Beware of this, warns the e-commerce development manager at Great Lakes Educational Loan Services.

For one thing, customers don't like surprises, even so-called good ones. And while you might assume that what you are giving the customer is desirable, it may actually be a turn-off.

Moreover, exceeding expectations can have a snowball effect, according to Naomi Karten, principal at consulting firm Karten Associates. You run the risk of creating unreasonable expectations over the long term.

"Customers expect what they are now receiving, and in a sense, they keep upping the ante," she says. "Your good intentions can become a potential pitfall."

– *Alan S. Horowitz*



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Perhaps you've heard: Oracle desupported Oracle Database 8i last year. Meaning potential headaches, higher cost or a complete migration to current versions of Oracle. Fortunately, IBM offers ongoing, around-the-clock service and support for DB2.

But that's not all. A Solitaire study has found that, on average, Oracle Database requires 25% more time to manage than DB2.[1] That's big.

And an ITG study showed overall costs for Oracle Database up to four times higher than DB2.[2] The Transaction Processing Performance Council results show that DB2 and eServer™ p5-595 are more than twice as scalable as Oracle Real Application Clusters, making them the overwhelming performance and scalability leader for TPC-C.[3] That's big, too.

No wonder DB2 is regarded as the leading database built on and optimized for Linux,® UNIX® and Windows.® Like other IBM database engine products such as Informix® and Cloudscape,™ DB2 is part of an innovative family of information management middleware that integrates, and can actually add insight to your data.

It's also built to take full advantage of your existing heterogeneous and open environments, and is built to enable true grid computing.

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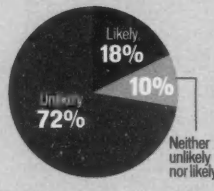
Career Watch

Gauging IT Workers' Confidence

IT workers are a bit less confident than U.S. workers overall that they will hold on to their jobs throughout the next 12 months. (Seventy-seven percent of workers overall said it is unlikely that they will lose their job or see it eliminated.) But IT workers are more likely to look for a new job in the next 12 months. (For U.S. workers overall, 39% were likely to be looking and 50% were unlikely.)

Likelihood of losing job or job elimination in next 12 months



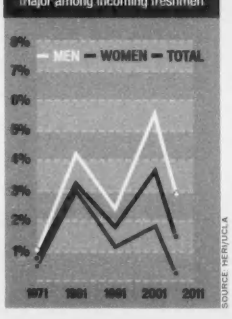
Likelihood of looking for new job in next 12 months

BASE: A U.S. SAMPLE OF 2,789 EMPLOYED ADULTS, AGED 18 YEARS AND OLDER, OF WHOM 181 ARE EMPLOYED IN IT POSITIONS. THEY WERE INTERVIEWED IN A SERIES OF TWO POLLS CONDUCTED IN MAY 2005.
SOURCE: SPHERION IT EMPLOYMENT REPORT, BASED ON DATA FROM AN ONLINE SURVEY CONDUCTED BY HARRIS INTERACTIVE ON BEHALF OF SPHERION CORP.

INTEREST IN CS WANES

■ Analyzing survey results from the Higher Education Research Institute at the University of California, Los Angeles, Jay Vegso wrote in the May issue of *Computing Research News* that the popularity of **computer science** as a major among incoming freshmen at all undergraduate institutions has dropped significantly in the past four years and that the proportion of women who reported that they might major in computer science fell to levels unseen since the early 1970s. The percentage of incoming undergraduates indicating that they would major in computer science declined by more than 60% between 2000 and 2004 and is now 70% lower than at its peak in the early 1980s.

Computer science listed as probable major among incoming freshmen



ASK A PREMIER 100 IT LEADER

Andrew C. Armishaw

TITLE: Group executive, CIO

COMPANY: HSBC Technology & Services, Prospect Heights, Ill.

Armishaw is this month's guest Premier 100 IT Leader, answering readers' questions about landing a job in the network security field and combining business and IT skills. If you have a question you'd like to ask one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month.

I financed my own CISSP certificate for career advancement during a layoff period, but I don't have much pure security management experience, and my current career is wasting away my other network skills. How do I find a job in network security while working full time and without having 10-plus years of experience? Sometimes the best place to look is within your current company. An employee who is willing to learn new skills to improve himself and his organization is invaluable.

Arrange an informational interview with key managers in the network security department of your company. Discuss the opportunities they have, and market the skills you can bring to the group. Remember, your knowledge of the organization, culture and people is an advantage you have over an external candidate.

I'm pursuing a degree course in business IT. The course encompasses both business units and IT units. Which are the most viable career lines to opt for? Both business and IT career paths are viable. The business must understand how technology can provide business solutions, and technology must understand the business to provide those solutions. The employee who incorporates both disciplines is an asset to the company.

Page compiled by Jamie Eckle.

OUTSOURCING: THE OTHER INDIANS

The Associated Press reported that outsourcing has come to American Indian reservations. According to a recent AP story, an Indian-owned marketing and Web design start-up on the Pine Ridge Reservation in South Dakota called Lakota Express can thank sloppy handwriting for its outsourcing fortunes. Eight Lakota Express employees vet the accuracy of electronic documents that are transcribed in China by workers who, although they understand English, often have difficulty deciphering Americans' handwriting. The work amounts to reverse outsourcing (work performed for a foreign company that is itself in the employ of a U.S. business). And experts expect plenty more of such work to become available.

WHERE WOMEN ARE GAINING

■ Even as the number of women in IT is declining in the U.S., it's on the rise in India, according to Rediff.com, an Indian Web portal. The Information Technology Association of America has found the number of women in IT to be on the decline in the U.S., falling 18.5% since 1996. **Today, 32.4% of U.S. IT workers are women,** the ITAA says. India can't match that, since only 24% of its IT workers are women, says India's National Association of Software and Services Companies. But the proportion of women in IT is growing in India, even as it's shrinking in the U.S. Nasscom says that **women will account for 35% of Indian IT workers by 2007.** And Madhumita Raghavan, an IT consultant in Bangalore, won't rule out the possibility of a **50-50 male-female ratio within a few years.** ID 55988

EXEC TRACK

Dell Taps 12-Year IT Veteran as CIO

SUSAN SHESKEY has been named CIO at Dell Inc. A vice president and 12-year veteran of the company's IT operation, she had been serving as interim CIO. Sheskey's management experience at Dell includes service as vice president for global sales, services, manufacturing and fulfillment IT.

Benzaken Gets Nod As TheLadders VP

TheLadders.com Inc., a job Web site in New York, announced that ALAIN BENZAKEN has joined the company as vice president of technology. Benzaken will oversee all Web site operations and spearhead technology development. He previously was an executive at Priceline.com Inc., serving most recently as vice president of development for international systems. Benzaken also spent 11 years at Prodigy Services Corp.

Farmer Is Interim CIO at the FDA

The U.S. Food and Drug Administration announced the appointment of FRED FARMER as acting CIO following the departure of Jim Rinaldi, who will serve as CIO at the Jet Propulsion Laboratory. Farmer had been IT program director for the CIO's office.

Lemke to Lead IT at Schneider

JUDITH A. LEMKE has been named executive vice president and CIO at Schneider National Inc., a provider of transportation, logistics and related services in Green Bay, Wis. Lemke joins Schneider National from Capella University in Minneapolis, where she served as CIO. Prior to that, she was vice president of the Midwest region at Born Information Services Inc., an IT consulting firm in Minnetonka, Minn.

PAUL INGEVALDSON

CEOs: Think Through Your CIO Choice

DEAR CEO: During my 40-year career in the IT business, I met a lot of CIOs, and I became one myself. I observed two distinctly different types that I'll call the activist CIO and the collaborative CIO. Although I think most CIOs use each approach at some time in their careers, each has a dominant type that determines how they generally approach their job.

The activist is the CIO who has very strong opinions about the IT needs of the company and is willing to push the IT agenda and take responsibility for its deployment.

PAUL M. INGEVALDSON retired as CIO at Ace Hardware Corp. in 2004 after 40 years in the IT business. Contact him at ingepi@aol.com.

The activist CIO is prevalent in IT turnarounds or when management isn't involved with the IT department's processes. Often, the marching orders for this type of CIO can be summarized by the dictum, "I want you to get in there and develop the systems you think we need to get this company running smoothly."

This type of CIO thrives in companies that are looking for operational systems necessary to replace costly and inefficient manual procedures. Managers within these companies are usually uninvolved in the IT process, and their expectations of the CIO are similar to their expectations of other department heads: Get the job done.

In this type of environment, systems get developed more quickly because there is one decision-maker. The company has passed its prerogative to IT to develop what is necessary. The downside is that the CIO's vision may not fit the strategic needs of the corporation. If that happens, the IT systems in the company will not be aligned to the company needs.

The collaborative CIO, on the other hand, is the type of person who understands that although systems are developed by IT, they are used by other departments. The collaborative CIO is usually found in a company where management understands that IT systems are very strategic and that IT resources are limited.

In this environment, the CIO is a member of the corporate strategic planning team that determines IT needs based on the company strategy. The CIO functions as a technology advocate, theorist and critic in order to assure that IT systems always support the corporate strategy as a point of reference. In most cases, the CIO reports directly to the CEO and sits "at the table."

Under this approach, systems proposals are presented to a committee representing all departments in order to assure that the right systems are developed. As a result, some systems may never be developed, but those that are should be the ones most needed by the corporation.

If an activist CIO attempts to operate in a collaborative IT environment, there will be significant problems — and they'll usually lead to a short career. Since the activist's approach is decidedly all about IT's vision, the deployment of systems will ultimately lead to resentment, lack of support and political turf battles — especially from those departments not included in the CIO's plan.

A collaborative CIO in an activist environment will also have a short career. In this case, a lack of interest and support will probably drive the collaborative CIO from the company. This company will want the CIO to make all the calls, yet the CIO will attempt to achieve some form of consensus. Ultimately, the CEO will become frustrated with this approach and see the CIO as weak and indecisive.

In selecting the appropriate CIO for your company, it's essential that you determine the needs of your company and pick the proper type of CIO to fulfill those needs.

Do you feel that IT is an operational activity that should be managed by the IT department? If so, hire an activist CIO. Get a Top Gun type who feels "it's my way or else."

If, on the other hand, you feel that IT is one of the most strategic weapons in your arsenal and you want your entire team to guide its use, hire a collaborative CIO. Get a business type who understands the business and knows how to build consensus around the IT agenda.

If you choose correctly, systems will be created to fit the style of your company. Choose wrong, and the CIO position will continue to be a revolving door and systems development will continue to suffer. **55998**

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IT consulting firm with HQ in Atlanta, GA has multiple openings for IT professionals to serve multiple clients throughout the U.S. Job duties include: Analysis, design, development and testing of computer applications. Specific skill sets needed include:

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Positions require either a B.S. degree in a related field and 1-2 yrs. of exp. w/specific skill sets. Some entry level positions are available & require a M.S. degree & related coursework or exp. Some senior level positions are also available & require 5 yrs. of progressive exp. Competitive salaries. Must be willing to travel /relocate. Send resume to: bwinter@mdicareers.com. Refer to specific JO# for consideration. Applicants must have authority to work permanently in the U.S.

Senior Developer, Applications. Chicago, IL. Citadel Investment Group is currently seeking a qualified candidate to be responsible for developing event-driven C++ UNIX server applications receiving high-volume data flow for equity trading. Will work on AUTEX, quoting engines, electronic eyes, cancellation engines and high-speed exchange connectivity.

Qualifications include a minimum of a Bachelor's degree in Computer Science or related field, or the foreign equivalent, and at least three years of C++ UNIX development experience. Must also have experience with real-time development, including UNIX IPC mechanisms (sockets, shared memory), UNIX and/ or POSIX multithreading development, and experience developing event-driven server applications receiving high-volume data flow from scratch.

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ObjectWin seeks System Analyst, DBA or other IT professionals. Applicants must have MS/ BS or equivalent. Skills in ASP.Net, B2B, VB, Java, HTML, VB.Net, XSL, CSS, MS CMS, SSL & MS preferred. Good wage. Travel required for some jobs. Apply at skarande@objectwin.com. EOE. No calls.

Corpus, Inc. (Dallas, TX) has multiple openings for IT professionals (System Analyst, Software engineers, DBA, etc) to design applications using Oracle, SAP, SQL, PL/SQL, COBOL, etc. Min MS/BS with exp. Travel maybe required. Please send resumes to resumes@corpusinc.com. EOE. No calls.

Will manage existing computer network, design & expansion of wired and wireless broadband communication network, supervision of network staff, provide guidance to the field personnel in using communication test equipment such as spectrum analyzers, network analyzers and wireless sniffers; benchmark and improve existing network, maintain specifications update documentation on as needed basis, conduct interviews and contact cooperative customers for the purpose of communicating services and distribute policy. Masters Degree in Telecommunications or Computer Engineering, 9 months experience required with at least 6 months in advanced wireless phased array antenna technology. Competitive wages, 40 hrs a week. Please send resume to: HR, ColumbiaREA, 115 E. Rees Avenu, Walla Walla, WA 99362.

Immediate opening for SOFTWARE ENGINEER: Software development company in Trabuco Canyon, CA. Fax resume to A1 Alpha Space, Inc. at (949) 713-4671.

Software Engineer: McData seeks applicants for the position of Software Engineer in Broomfield, CO. Engage in analysis, design, programming, debugging and maintaining enterprise application software. Requirements include a master's degree in computer science, working knowledge of Java design at a production level, object-oriented programming and design, J-Builder, UML, XML and Eclipse. Respond by resume to Cherie Henket, McData, 4555 Great American Parkway, Santa Clara, CA 95054.

Systems Analyst III

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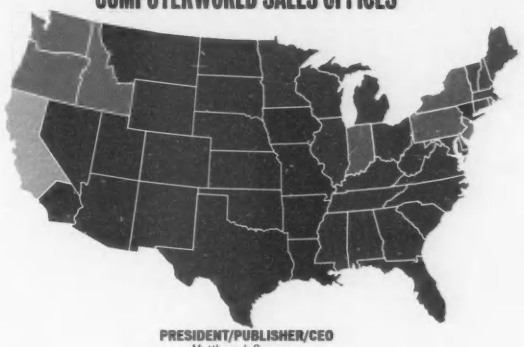

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Utility

the company looked at packaged CIS offerings from vendors such as SAP AG and SPL WorldGroup Inc. But, he noted, it would have cost NU an estimated $140 million-plus to purchase and install such packaged CISs and develop a common set of customer service business processes.

By customizing and enhancing the older IBM CIS already used by its Yankee Gas Services Co. subsidiary, NU expects to pare those costs to roughly 60% of what it would have spent on an external package, Charette said.

NU has hired IBM and India-based Infosys Technologies Ltd. to provide about 20 on-site contractors and 50 to 70 offshore workers to design and develop the new system. About 70 NU IT and customer service managers and staffers are also working on the project, he added.

> The total cost of [a packaged CIS] wasn't going to deliver sufficient incremental value above what we were spending on [customizing] the IBM system.
>
> **DOMENIC GUGLIOTTI, IT project manager, Northeast Utilities**

NU has a separate contract with IBM to convert customer data from the IDMS and flat-file VSAM CIS databases that are being consolidated, said Domenic Gugliotti, IT project manager for NU's CIS group.

Customized Savings

The packaged CISs that NU reviewed were scalable and worked on both distributed-computing and mainframe platforms, according to Gugliotti.

"But the total cost of the system wasn't going to deliver sufficient incremental value above what we were spending on the IBM system," he said. For instance, NU plans to introduce a new rate plan for some of its businesses starting in 2007, and the IBM CIS already supports those requirements, he said.

The cost to install a new packaged CIS often runs at about $50 per customer for energy companies, said Rick Nicholson, an analyst at market research firm Energy Insights, a division of IDC. Since NU has 2 million-plus customers and plans to do a substantial amount of CIS customization, "it's altogether possible that a new CIS system would end up costing it upwards of $140 million," said Nicholson.

Because NU is revamping its existing IBM CIS, the estimated price tag for its customer service integration efforts still falls "below the industry average," Nicholson added.

NU plans to put the new CIS into production for its customer service teams at The Connecticut Light and Power Co., Yankee Gas and Western Massachusetts Electric Co. by March 2007 and at its Public Service of New Hampshire subsidiary by October of that year, said Charette.

Development of a set of business processes for the new system has already been completed (see related story, below).

Gugliotti said the developers of the updated system have been able to reuse code from other NU applications by using enterprise application integration software from WebMethods Inc.

Peripheral systems being interfaced into the CIS will provide natural speech recognition, integrated voice response, Web self-service and telephony capabilities, said Charette. **56324**

MORE THIS ISSUE

To learn about recent advances in natural speech recognition applications for customer service call center systems, please turn to **page 25**.

User Input Key to Success of NU Integration Project

HARTFORD, CONN.

A key piece of Northeast Utilities' mammoth customer service integration project is the creation of a common set of customer service processes.

The utility sought to develop a procedure that would let service representatives resolve problems for customers of any one of its four business units.

The effort that was completed earlier this year and the processes that will be put into practice next year were drawn from best practices suggested by line managers and executives from each of NU's subsidiaries, said Kevin Charette, project director for the customer service integration project at NU. The project's developers created about 70 distinct processes, he said.

"In the beginning, it was considered daunting because we were taking business practices from four different companies," said Charette. "But we worked through all these issues."

The successful creation of the process was achieved, in part, by layering the customer service integration project team with managers and staff from the four operating companies. Pinnacle Call Center Solutions in Lake Forest, Calif., helped NU identify best practices across those business units, said Charette.

"We took this very, very seriously," said Domenic Gugliotti, IT project manager for the CIS group.

NU is planning to add up to 100 temporary customer service representatives late next year so that its existing reps can take turns being trained on the revised CIS. "You have to fly the airplane while you're changing the engine," said Charette.

The consolidation of six call centers into two virtual centers should result in a 20% reduction in NU's customer service staff, said Charette. Most, if not all, of the reductions, which will affect managers, salaried staff, customer service reps and IT workers, will be made through attrition, said Charette.

– Thomas Hoffman

Germany Launches IT Security Initiative

Interior minister says companies need to do more to protect systems

BY JOHN BLAU

The German government, looking to better protect the country's systems from viruses and other attacks, last week announced a national IT security plan that includes the establishment of a computer emergency response center.

The plan, unveiled Thursday in Berlin by Interior Minister Otto Schily, emerged as Germany is struggling to come to grips with increasing attacks on IT systems in both the public and private sectors.

"We must deal with threats of a new quality and quantity," Schily said at a news conference, adding that the country as a whole still isn't fully aware of the harm that can be caused by cyberthreats like viruses, worms and phishing attacks.

The lack of commitment by many German companies to IT security is worrying, Schily said. Some corporate executives wait until they have an acute problem before taking steps to improve their IT defenses, he noted. Home users also underestimate the need to safeguard systems, the minister warned.

The government's "National Plan to Protect IT Infrastructures" has three major goals: preventing attacks, enabling swift responses to ones that do occur and encouraging the widespread adoption of common security practices.

The Federal Office for Security in Information Technology, known by its German acronym BSI, will play a key role in the effort by developing and implementing new security standards within the public sector and publishing guidelines for corporate users.

Schily said the BSI will also house the new computer emergency response center, which will collaborate with IT security services vendors. The center's planned responsibilities include sending e-mail alerts about potential threats and responding to attacks via a technical support hot line.

Schily called Germany's plan the first of its kind in the European Union and said he hopes that other members will be encouraged to follow the country's lead with similar initiatives. **56351**

Blau writes for the IDG News Service.

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FRANK HAYES ■ FRANKLY SPEAKING

Lessons Not Learned

WHAT HAVE WE learned from the current stampede of Windows-infecting worms with names like Zotob, Esbot, Bobax and Spybot (see story, page 1)? First lesson: If you want to raise public awareness about a tired old subject like computer worms, just gore the oxes of reporters and editors at CNN, *The New York Times*, The Associated Press and ABC News. There's nothing like personal pain to freshen up a story. In CNN's case, there's nothing like having it happen on live TV.

Second lesson: Uh, *is* there a second lesson?

Probably not. After all, we already knew that the most common security hole is a buffer that can overflow if the code filling it doesn't check for input length. That's the programming flaw that these worms exploit — a flaw that's been around since 1988, when the notorious "Morris worm" brought a much smaller Internet to its knees with a buffer overflow attack.

We already knew that it's a good idea for vendors to release patches as soon as vulnerabilities are made public. To Microsoft's credit, it shipped a patch the day it announced the security hole. (But no points to Microsoft for shipping products with the hole in the first place.)

We already knew that stretched-thin IT staffs have a tough time applying those patches quickly, because it takes time to test and then roll them out to servers and desktop PCs.

We already knew that publishing exploit code that can easily be pasted into worm programs is not helpful. Well, it's helpful to worm writers, but not to the rest of us. Such code was reportedly published on a security Web site the day after Microsoft got its patch out the door. Three days later, the Zotob worm was in the wild, infecting Windows machines.

We already knew that worm writers both share information and compete with one another. It's no great surprise that within hours, Zotob was joined by other worms exploiting the same hole — and hammering away at Windows users.

So maybe there just isn't a lot to learn from this round of being overrun by worms.

But isn't it time we stopped treating worm outbreaks as learning experiences?

Isn't it time for Microsoft to stop selling operating systems with buffer overflow security holes? That wouldn't require bug-free programming — just looking for and eradicating one particular kind of bug.

Yes, Microsoft is trumpeting that Vista (nee Longhorn) will be safe from buffer overflows when it ships next year. Then again, that promise was originally based on Longhorn using .Net, which automatically checks buffers every time they're accessed. But now Microsoft reportedly has replaced most uses of .Net in Longhorn/Vista with code written by hand. That's so Vista can meet its 2006 deadline — secure or not.

And isn't it time for Microsoft's partners and competitors, whether proprietary vendors or open-source projects, to eradicate all buffer overflows too? This isn't brain surgery — it's more like good hygiene. For new code, it's simple: Just make sure every buffer access is checked. Existing code is a bigger pain, but if we found every reference to a two-digit year during the run-up to Y2k, we can find every buffer access.

Finally, isn't it time corporate IT stopped accepting buffer overflow bugs from *any* programmer — vendor, consultant or in-house? It's not impossible, or even difficult. Every programmer knows how to write software that doesn't have this bug. Every enterprise deserves software that doesn't expose the business to attacks, downtime and financial loss.

It's time to demand business-quality code — the kind our management should expect from a business-quality IT shop.

Otherwise, we'll just be showing that when it comes to buffer overflow attacks, we've really learned nothing at all. **56294**

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

Out to Lunch

It's the late 1980s, and this pilot fish's boss at a nonprofit agency has a brainstorm. "He wanted to provide a menu-driven telephone system that would let local boaters and fishermen call in for information on river levels," says fish. "I was invited to a lunch with the local phone company to discuss it. Being new to the project, I started by asking what percentage of the targeted rural population had touch-tone phone service – a must-have for menu-driven phone systems. As I remember, the chicken salad was delicious and the project was never discussed again."

Unclear on The Concept

Redesigned Web site gets a new feature: a search box in the top right corner of every page. "Wanting some user feedback, I sent out a brief survey to the employees to have them try it out," says the pilot fish who built it. "One response: 'I like that you have a search button, but what is the blank box to the left of it for? Aren't you going to put something in there?' "

Not Impressed

Sysadmin pilot fish is working in the server room when the assistant group supervisor comes in with an interviewee. The supervisor "pointed at various things," says fish. "Then he asked me, 'Hey, how much does this hold?' while pointing at the big gray box on the wall. '40KVA,' I replied. 'No, not how much power does it use. How much data does it hold?' I paused a second, then said, 'None, that's the UPS.' " He looked at the box, then led the interviewee out. "I never found out if we turned him down or he turned us down."

Text It

Applicants for clerical positions at this company take a test for computer skills, says a manager pilot fish. "One candidate was presented with a spreadsheet containing column headings showing the years 1999, 2000 and 2001 and was instructed to format the range as text," fish says. "The end result was new column headings reading: one-thousand-nine-hundred-ninety-nine, two-thousand, two-thousand-one."

Aha!

Pilot fish can't figure out why one supervisor loses her mainframe connection a few times each week. "We checked everything and even hooked up a sniffer," says fish. But a few weeks later, he's having lunch with a buddy from the help desk. "He asked if I remembered the supervisor that everyone despised," fish reports. "He said that, a couple of times a week, he would dump her connection – just because he could. After that lunch, the problem mysteriously went away."

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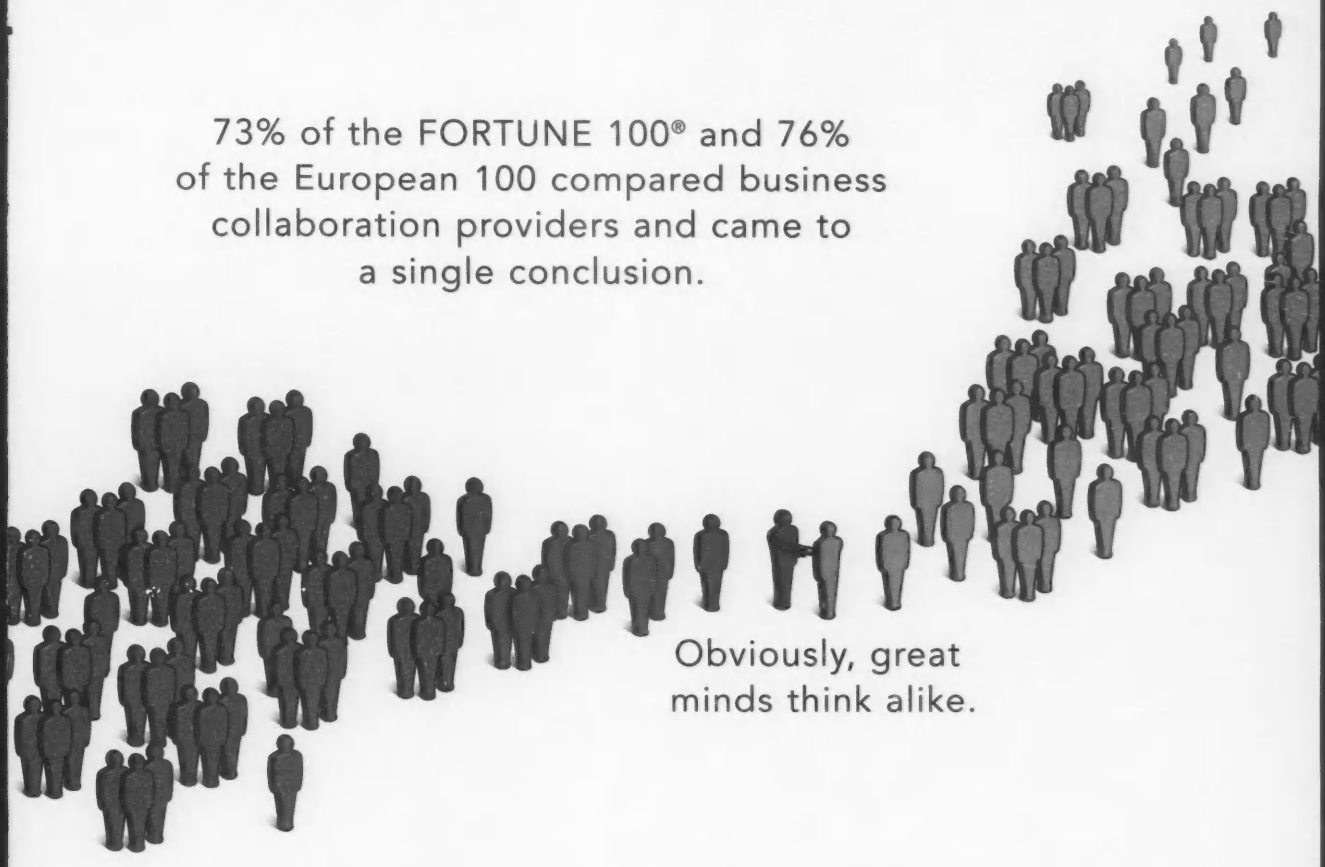

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